

A M E R I C A N

FORESTS

FEBRUARY 1948

50 CENTS





\$1,700,000,000 from investors
for new telephone facilities
in the last two years

THERE are one hundred and seventy bags in this picture. Suppose each bag contained ten million dollars.

That would make \$1,700,000,000—the amount that investors have furnished for the expansion and improvement of your telephone service in the last two years. Further substantial amounts are being invested this year.

Investors put their money in the telephone business in the hope of security and a reasonable return. Every telephone user shares the benefits in more and better telephone service.

In the Bell System, the term investors means hundreds of thousands of small investors in every walk of life and in every section of the country—men and women just like yourself. The telephone business has been built by the savings of the many rather than the wealth of the few.

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AMERICAN FORESTS

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THE COVER

Florida Coastline — by John Kabel

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Burt Huntoon



An Opportunity to Pay Tribute to Fire Heroes



The American Forest Fire Medal Board recognizes outstanding cases of personal heroism in forest fire fighting by awarding the Forest Fire Medal illustrated above. The Board consists of a representative of The American Forestry Association, Society of American Foresters, Charles Lathrop Pack Forestry Foundation, Association of State Foresters, American Forest Products Industries, and the Canadian Society of Forest Engineers.

In order to establish this Award on a permanent basis, a fund or foundation of not less than \$3,000 is planned. Cash balance on hand totals \$2,830. Your assistance in completing this fund is invited. It is believed that foresters, forestry, park, and all forest protection associations, as well as other conservation groups, will welcome the opportunity to contribute. Send contributions to:

THE AMERICAN FORESTRY ASSOCIATION

919 SEVENTEENTH STREET, N. W.
WASHINGTON 6, D. C.

TALK OF THE WOODS

Goal No. 3 in President Truman's State-of-the-Union message to Congress is to "conserve and use our natural resources so that they can contribute most effectively to the welfare of our people."

Prescribed steps towards this goal include rebuilding soil fertility, expansion of reclamation programs with more multiple-use dams, sustained-yield forestry with greater emphasis on tree planting, and integrated development of river basins.

"We can learn much from our Tennessee Valley experience," the President said. "We should no longer delay in applying the lessons of that vast undertaking to our other great river basins."

Since 1940, Lufkin, Texas, has boasted the only newsprint mill in the South. Now the Southern Newspaper Publishers Association comes forth with the announcement that a second mill, costing \$32,000,000, will be operating at Childersburg, Alabama, within eighteen months. Its capacity—about 100 thousand tons of newsprint a year.

SNPA also reveals the acquisition of 100 thousand acres of forest land to supply the mill—at least in part. What an opportunity for southern publishers to set an example for the Deep South in the application of sound forestry practices to southern timberlands!

Texas newsprint production, by the way, is facing a unique situation, according to *Advertising Age*. The problem this time is water—not wood. A study made by a University of Texas engineering professor concludes that Texas forests contain enough pine wood to furnish newsprint for all the papers in the state, but there is not sufficient water to permit establishment of enough paper mills. A river control program is advocated to help the situation.

Do you know that within the boundaries of our national parks and monuments are more than 600 thousand acres of land, divided into something like 3,000 tracts, and worth millions of dollars, that are not owned or administered by the federal government? The various states have title to a large portion of this area—

the rest is in private ownership. In 1941, value of private lands in the national park system was estimated at \$20,000,000—they are worth double that today.

For a graphic picture of this novel situation—and what should be done about it—get a copy of *Your National Parks are in Danger*, issued by the Izaak Walton League of America, 31 North State Street, Chicago 2, Illinois.

Atomic tree growth—Bunriko University scientists report that tall trees surviving the atomic bombing of Hiroshima put on two years' growth in twelve months. Trees showing greatest resistance to bombing damage were plum, cherry, camphor and eucalyptus. Most pines and cryptomaria were killed.

Dr. Alfred Crofts, Denver University professor, conducts the radio feature "Journeys Behind the News," which after the original broadcast on a Denver outlet is transcribed for rebroadcast by fourteen radio stations ranging between Columbus, Ohio, and Corvallis, Oregon.

Recently, after the professor discussed the public lands controversy in terms not altogether complimentary to the stockmen's viewpoint, the Rocky Mountain Radio Council ruled the rebroadcast off the air. The explanation—a controversial subject and no opportunity for a rebuttal by the stockmen.

Are these westerners who talk so eloquently (when it comes to their use of public grazing lands) about free enterprise forgetting there is also the right of free speech?

Add to men we would like to know—Assistant Chief Ranger William J. Butler of Mount Rainier National Park in Washington, who turned down a \$5,000 reward for finding the wreckage of a Marine Corps transport plane which crashed in the park about a year ago. The Department of the Interior recognized his extraordinary act by giving him a pay raise—\$126 a year.

Whatever became of a California game warden's charge that movie actors Clark Gable and Frank Morgan exceeded the duck hunting limit?

FOR FOREST FIRE LINES...

QUICK!

THE SEAMAN



Portability plus is one reason for the Motorized SEAMAN'S popularity in forest fire line construction. Even the largest motorized model (6 feet wide) can be towed at high speed by a pick-up truck, — and at the scene it's ready for towing by any average farm tractor.

Through heavy brush, even ripping and milling and chopping saplings 1 1/2 to 2 inches in diameter, the SEAMAN leaves an open path behind. Forestry experts estimate it does the work of a ten man crew. Investigate the SEAMAN. Write today for complete details.



Building Forest Fire Lines

When land has been cleared of timber, old buried roots may be a problem, for if seedlings are to be planted the old roots may foul the new stock. Again, if land is cleared for road construction, old roots must be removed. Here again the SEAMAN has a use, for operating with the hood open, it digs the roots and throws them to the surface where they can be easily gathered for removal.



Building Park Roads

And in the construction of bituminous, soil-cement, or any soil stabilized park roads, parking areas or forest trails, — the SEAMAN is recognized by highway construction experts the country over as the most efficient equipment for in-place mixing operations.



Seedbed Preparation

Remember, — the SEAMAN is a 4-job machine in forestry work. It prepares a perfect seedbed for nursery stock, — a quality of tillage superior to the combined work of plow, disc and harrow.



These uses and many others are described in the book, "Soil Stabilization Methods," — compiled by Seaman engineers. Write for your free copy. Ask for Bulletin AF-25.

SEAMAN MOTORS, Inc.
MILWAUKEE, WISCONSIN

LETTERS TO THE EDITOR

—And Why Not YOUR Dentist?

SIR: The enclosed Christmas gift renewal to AMERICAN FORESTS is for my dentist. I am renewing not only because he is a close personal friend and genuinely interested in the forest situation, but because he is a dentist. I have the magazine sent to his office address. By request, he keeps it on his waiting-room table. It is immensely popular among his patients and, since he is interested in forestry himself, he discusses the articles with them. In this way the latest information and ideas about forestry and the forest situation reach several hundred people a year, in all walks of life.

Perhaps more members of the Association could be interested in entering similar subscriptions for their dentists or doctors. You know how time drags in a waiting-room, and how people will read things they would never look at elsewhere. It looks to me like a golden opportunity.

If I ever become rich enough to afford three subscriptions, I plan to enter the third for my barber.—*Philip C. Wakeley*, New Orleans, Louisiana.

That Cigarette!

SIR: In looking through your December issue we notice on page 537 something which we thought should be called to your attention. We are always trying to prevent forest fires and it would be a crime for anyone to start a fire in beautiful timber, such as the pictures shown in your magazine. However, you will notice one of the men, and we assume that he is a forester or a photographer, standing in front of one of the big trees with a cigarette in his mouth. This is just like going into a powder room smoking a cigarette, as the spark from it falling on dry moss, leaves and bark would be sufficient to start a fire. We do hope you will bring this to the attention of the man who is shown in the picture smoking a cigarette.—*C. M. Gooch*, C. M. Gooch Lumber Sales Company, Memphis, Tennessee.

Political Note: Watch Oberlin

SIR: This spring Oberlin College will hold a full-scale mock Republican convention. Over a thousand of the livelier students, as state delegates and lobbyists, will thoughtfully write

a platform and noisily nominate a candidate. I have been appointed chairman of the pressure group for conservation of natural resources, which, in influencing the writing of the platform and marshalling support among the delegations, hopes to educate some of these young people in the dangers of soil deterioration, overgrazing, water pollution, forest destruction and wildlife depletion.

As our interests include those of your organization and we wish to present a realistic and constructive program to our fellow-students, we hope that you will be able to help us.—*Miss Martha W. Redfield*, Oberlin, Ohio.

A Feature on Tree Pests

SIR: I'd like to make a suggestion, why not publish a feature on "Knowing Your Tree Pests," in which some insects important in forestry are described? Also, the control, economic importance and many other pertinent facts could be presented.—*Philip L. Thornton*, Syracuse, New York.

On the Maine Fires

SIR: I have just read A. G. Hall's article "Four Flaming Days" in the December issue. Mr. Hall has done a good job of describing the disaster, but it seems to me that he and other writers failed to emphasize adequately one of the important lessons that should be learned from this and many of the other forest fire disasters of the past.

The stories all start with descriptions of the long build-up of increasingly critical fire hazards usually due to drought. Conservation officials issue warnings of the danger. One, or usually several, small fires start and are more or less controlled. Several days elapse with these small fires controlled and quiet but not put out. Then comes the blow-up. None of the stories adequately emphasize the fact that despite the obvious danger some time elapsed before the fires got away and did immense damage.

There seems to be a combination of factors which permit the setting of the stage for these conflagrations. The small fires usually start in inadequately protected borderlands between intensively protected forest areas and municipally protected towns. Conservation officers, who are aware of the danger, may not

have direct responsibility; municipal firemen may lack interest, fail to appreciate the danger, or lack equipment or experience to handle such fires. Land values are usually low and cost of adequate protection high, but fires in these conditions represent a serious threat to high values. Under normal weather conditions they may not be any threat. Realization of the importance of intensified protection, especially during critical weather periods, seems to be needed if similar disasters in the future are to be prevented.

Mr. Hall neglected to mention that the Bar Harbor fire (Mount Desert Island fire) besides doing great damage to the town also burned over 8,000 acres of Acadia National Park. He also credited the U. S. Forest Service and Maine Forestry Department with handling the fires. Actually the Mount Desert Island fire was largely supervised and equipped by the National Park Service which flew twenty-eight supervisory park personnel from park areas all over the East to Bar Harbor.—*Lawrence F. Cook*, Washington, D. C.

SIR: Your article in the December issue ("Four Flaming Days," by A. G. Hall) was very welcome in contrast to the greatly exaggerated reports that many newspapers carried about losses from the Maine fires, and intimations in some of them that the Maine Forest Service was inefficient and that a complete overhauling is required. Their accounts apparently were based upon misinformation, for most of the land burned was not within the limits of the Maine Forestry District, and with one or two exceptions, according to my information, no fires originated within the District and extended outside of it.

The Penobscot Chemical Fibre Company owns approximately 500 thousand acres of land and our losses from three different fires were less than twelve acres. We were in constant touch with the Maine Forest Service in Augusta, and with observers in fire towers on or near our lands, and in all cases where we found that action of the Maine Forest Service was prompt and effective. In one instance we were informed early in the morning of a fire; sent truck with men and equipment to fight it and found that when they arrived on the spot there were already at work pumpers from nearby towns and from the Maine Forest Service.

Since this Forestry District was established the number and intensity of fires has been materially reduced.

(Turn to page 96)

1.



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3.



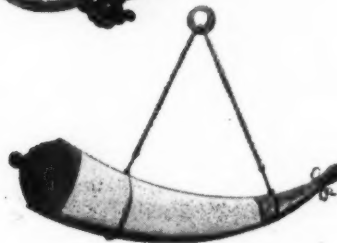
4.



1.



2.



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4.



Match up the people and the horns

(It may mean money to you!)

THE FIRST THREE, of course, are very easy.

The sea captain (1) goes with Cape Horn (3); the musician (2) with the French horn (4); and the pioneer (3) with the powder horn (2).

That leaves the Average American (4) matched up with the Horn of Plenty (1).

As such an American, you'd like that

to be true, wouldn't you?

It can be—and will be—for millions of Americans who, today, are putting money regularly into U. S. Savings Bonds.

In ten years, as the Bonds mature, these millions will find that they have truly created a Horn of Plenty for themselves!

For they'll get back \$4.00 for every

\$3.00 they're putting in today!

There are now *two* easy, automatic ways to buy U. S. Savings Bonds regularly. The Payroll Savings Plan for men and Women on payrolls; the Bond-A-Month Plan for those not on payrolls but who have a bank checking account.

Let U. S. Savings Bonds fill up your personal Horn of Plenty . . . for the years to come!

Automatic saving is sure saving—U. S. Savings Bonds

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Editorial

Secretary Krug's "Open Door" Policy

WHEN, a few weeks back, Secretary of the Interior Julius A. Krug brought representatives of thirty-four conservation organizations together in a two-day session to discuss natural resource problems facing his department, he established a precedent which, we hope, other governmental agencies, state as well as federal, will see fit to follow. For by instituting an "open door" policy, by seeking advice as basis for sound policies and action on resource matters, the Secretary has provided an excellent example of democracy at work. The purpose and conduct of this meeting were far removed from the average citizen's interpretation of bureaucracy.

Obviously, Mr. Krug expected criticism—and got it. Shortly after the compliments and courtesies between guests and host had been made for the record, his department came under the fire of the conservationists. Critically, but with constructive aims, the various organizations let the Secretary know what they believed were weaknesses or gaps in his department's policies, on what issues its various bureaus might expect support or opposition. When the conference closed, the department had solved none of its problems—had accumulated more, in fact. But it had received a volume of considered opinion and suggestions with which to work.

That this method will continue to prove beneficial to Mr. Krug and the Department of the Interior in its declared effort to attack public land issues in the interests of all the people, is indicated by his follow-up to a reso-

lution passed by those attending the conference calling for a committee to consult with the Secretary from time to time on conservation matters.

In a letter to The American Forestry Association, Mr. Krug indicated his desire to appoint a representative group to help his department with its conservation problems. "Such a group," he said, "can serve a very useful purpose in giving the department the benefit of the conservation organizations' views, and in providing a focal point for the dissemination of information regarding the programs and policies of the department."

When bureaucracy lifts its iron curtain and invites the public to participate in planning, the education process apparently works both ways. Not only was Interior able to obtain free and open discussion from organizations with a real interest in its problems and methods of handling them, it was able also to explain administrative and other obstacles which affect the formulation of policies and actions. The group meeting in Secretary Krug's office also was impressed with his capable assistants and with the sincerity of his and their desire to overcome the obstacles to conservation progress.

This mutual education process has long been needed by governmental departments and bureaus, at all levels. Its advantages are obvious. That it holds certain dangers is probably one of the reasons it has not been widely attempted.

Secretary Krug, we are sure, recognizes the dangers. And he has proved

he is big enough to accept them as part of the democratic process. His experience with industry advisory committees during the days of the War Production Board should warn him that each speaker left the conservation conference assured in his own mind that the Secretary will be guided by *his* advice. To the extent that the advice is not followed to the letter, the Secretary may be accused of breaking faith.

Doubtless, the Secretary recognizes that this meeting—and others which he plans to call—cannot result in programs of action within the department that will meet with full approval of all conservation groups. There are other sides to all land-use problems whose proponents likewise have a right to expression. Their opinions necessarily will bear weight in the development of Interior's policies.

Despite its dangers, it appears that Mr. Krug shares our opinion that the advantages of this "open door" policy outweigh its disadvantages. As a means of stimulating public support, as a sounding board for new proposals, the conference approach is one which may well be encouraged at all levels of governmental operations.

State conservation agencies particularly need the kind of public support which can be generated by forestry and other conservation organizations. Similarly, in the development of their programs, both legislative and administrative, they need to seek the advice and assistance of the groups within the state which have a real interest in the protection and development of its resources.

◀ Sawmill In The Pines—Chester, California
Photograph by Caterpillar Tractor Company

THE CASE OF THE PUBLIC RANGE

What is back of present efforts to wrest control of public grazings lands from the American people? In this two-part article, Professor Chapman, a keen student of land use, turns back the pages of history for the answer

By H. H. CHAPMAN

For the second time within a generation the livestock industry is waging a determined campaign in Congress to secure ownership and domination of what is left of 400 million acres of grazing lands in eleven western states still owned by the public. The program was formulated a year ago by the American National Livestock Association after several years of groundwork in which it had the cooperation of the National Wool Growers Association. What these stockmen want is the complete cessation of all control over their use of the grazing resources of the public domain and the national forests, either by vesting them, as permittees, with the rights equivalent to unrestricted ownership or, better still, acquisition of title in fee simple to the grazing lands at a price to be fixed by them (the stockmen) through con-

trol of congressional legislation.

To fully understand the true purport of this program and of certain bills already introduced in the 80th Congress, it is necessary to turn back the pages of history and re-examine the long and often bitter conflict between the forces of conservation and western livestock interests. Actually, the story begins with the western movement of American colonists, as will be brought out later. The official record, however, dates its beginning in 1891 when the President of the United States was given authority to create forest reserves by proclamation. For this was the first threat to the power of the stockmen. A new principle in national policy, it meant that land would be withdrawn from operation of land laws and acquisition of private title. It meant that free and unrestricted use of this land for removal of timber and for grazing was at an end.

The western stockmen bitterly though unsuccessfully fought establishment of these national forests. So did the Public Lands Committee of

THE AUTHOR, until his retirement several years ago, was Harriman Professor of Forest Management at the Yale School of Forestry. He has been a keen student of the national conservation scene for nearly half a century.



U. S. Forest Service—Photo by Prater

the Senate which from early days has been the stronghold of western interests seeking ways of transferring the wealth of the public domain to private ownership.

One of the first regulations of the Department of the Interior, chosen to administer the new forest reserves, was to prohibit all grazing of livestock within their boundaries. In 1898, however, a botanist of renown, Frederick Coville of the Department of Agriculture, reported after a careful field study that sheep could be grazed under control in the Cascade Mountains of Oregon, without causing too much damage to timber growth. As a result, both sheep and cattle were permitted on the reserves.

There were those, like John Muir, who held that the opening of the forest reserves to controlled and



Part of the 400 million acres of public grazing lands in the West — scene of long and often bitter conflict between the forces of conservation and western stockmen

limited grazing was a violation of good faith and a continuing danger to the purposes of the national forests, which were created primarily for the purpose of protecting and growing timber. In this, as events have proved, they were not far wrong.

At first, no fees were charged for the use of the range. Indeed, it was not until 1905 when the national forests were transferred to the Department of Agriculture and the Forest Service, under Gifford Pinchot, took over their administration, that grazing fees were imposed. The purpose was twofold—to return to the public a fair value for the use of its property and, more important, to prevent the establishment of perpetual rights to the public range.

Nothing was written in the enabling act of 1891 either for or

against grazing of livestock on the national forests. Nevertheless, the power of the Forest Service to regulate grazing was confirmed by the U. S. Supreme Court through interpretation of its responsibility to carry out the general purposes of the act, and to enforce any measures required for the protection of the forests and watersheds. Fred Light, a Colorado stockman, claimed that under state law the range was free unless fenced, and proceeded to trespass on the forest areas. When the Supreme Court decided against him in 1911, the authority of the government was finally established.

How has this experiment in federal landlordism worked out? Following the transfer of the forest reserves to the Department of Agriculture, a grazing branch was organized

under Albert F. Potter. During the succeeding years, by trial and error, grazing regulations and procedure were built up with the objective of benefiting the greatest number of users, rather than the encouragement of large outfits. Migratory bands of sheep were practically eliminated. Trespass, sometimes exceeding in numbers the permitted stock, was controlled by fencing and close inspection. Priority rights were recognized, based on residence, and monopoly of grazing by large outfits was progressively whittled down. The overall numbers of stock were gradually diminished by reductions when transfers of permits took place, with the goal of limiting the numbers to the permanent carrying capacity of the range. Conflicts between interests of stockmen, water users, wild-

life and forest tree reproduction were adjudicated as fairly as possible.

But the influence of the local stockmen remained powerful and pressure for increased allotments and greater numbers of livestock was unending. This was met by the field personnel of the Forest Service with backing from Washington. A classic example is a letter written in 1918 by Chief Forester Henry S. Graves to District Forester Frank Pooler at Albuquerque, New Mexico.

"It is clear," wrote Mr. Graves, "that there has been deliberate trespass, with false returns of the number of stock, by certain permittees. There is evidence already at hand to convince us that stock has been run under the names of persons who really did not own it. These practices must be stopped. The grazing policy of the Forest Service is essentially in the interest of the small man. That policy must be carried out in practice. Any tendency to extension of control by strong interests through evasion of the regulations must be checked by vigorous measures. Go forward with the excellent beginning you have made, with my fullest backing until you can be certain that there is not a head of excess stock, not an acre overgrazed, and not a permittee about whose good faith in ownership there is any doubt."

The situation at this time, of course, was aggravated by World War I and demand for greater production of meat on the range. But soon after this crisis control measures began to reach the point of effective-

ness, and over much of the area of the national forests where damage had not reached the destructive stage, marked improvement set in. However, this increase in carrying capacity of the range was offset by encroachment of young timber, a permanent objective of the national forests, by rapid increase of deer and elk, also a national asset, and by the need of protecting reservoirs and watersheds.

The story of excessive grazing during World War I and the later resumption of control is quickly told by comparative figures. In 1914, which may be considered a normal year, there were 1,616,880 cattle and horses and 7,618,802 sheep and goats grazed on the western national forests under permit. The peak of overgrazing was reached in 1918 with 2,226,054 cattle and horses and 8,511,652 sheep and goats. In 1945 the numbers had dropped to 1,224,569 cattle and horses and 3,894,604 sheep and goats. Thus after removal, by slow stages, of a forty-percent excess of cattle put on the range during the war, the subsequent reduction from prewar status (1914) has been about twenty-five percent. Sheep already greatly in excess, increased about ten percent during the war and their reduction had reached in 1945 nearly half the prewar figure.

There remain many critical areas within these western national forests on which overgrazing is still taking its toll. These areas are in need of further reductions. What would happen if this consistent, technically-

guided effort at control were abolished? If the grazing lands, inextricably intermingled with forest growth, were removed from federal jurisdiction? And if stockmen were free to disregard all public interests and serve only their own ends?

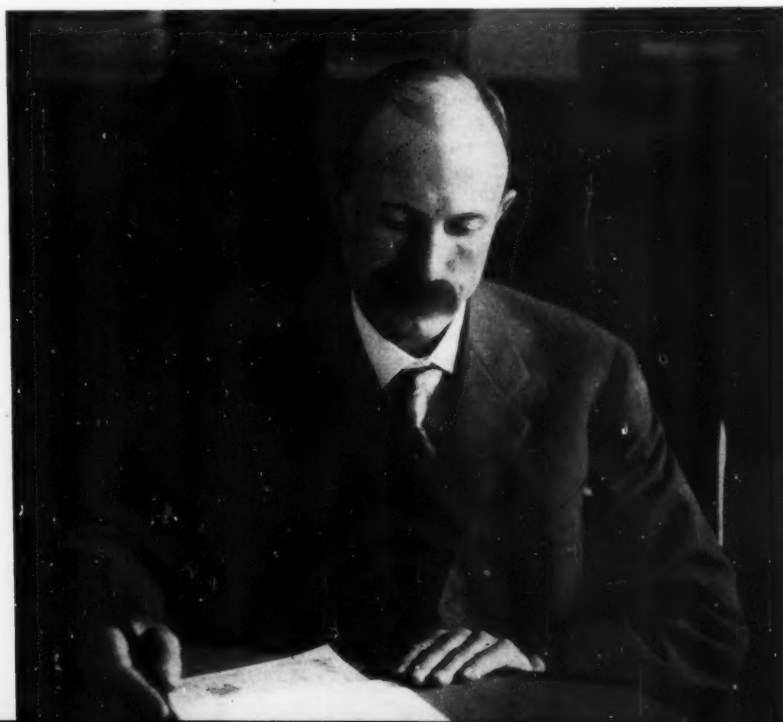
Recent studies of long-time trends in livestock populations in representative areas of the West indicate that in the past forty years greater livestock reductions have been brought about through lack of forage on ranges *outside* the national forests than have been made on national forests in the same localities. Unrestricted overgrazing has brought its own penalty in reduced range carrying capacity. Stable range livestock operation cannot be built on ranges which are overstocked and deteriorating. Nature herself puts the operator out of business when destructive grazing is continued. The moderately stocked range produces greater calf crops, greater weight gains, lower death losses and higher net returns than does the overstocked range.

However the stockmen in 1905 looked upon the increasing efficiency and control exercised by the new service, one thing is certain—they did not intend to pay any more for the privilege than they could avoid.

The struggle to place the charges for grazing on federal lands on the basis of the competitive commercial value of the privilege dates back to the imposition of the first fees in 1905. Political pressure, economic arguments based on inability to pay, and revision of the basis for payment have enlivened the forty-three-year period during which the Forest Service has sought a fair solution of the problem. Never has there been a surrender of the principles of control on the one hand, and of charging a fair price on the other. The last adjustment placed the fees on the basis of a proportion of market prices for livestock. Nor did the owners of large migratory bands of sheep take kindly to the successive steps by which their preferences were annually restricted in favor of smaller resident ranchers.

In 1925, Senator Robert M. Stanford of Oregon, found his interests in sheep seriously curtailed. As a member of the Public Lands Committee of the Senate, he introduced a bill in the 69th Congress "to promote the development, protection and utilization of grazing facilities on public lands, to stabilize the range stock-raising industry, etc." Some idea of the character of hearings that followed might be gleaned from

Albert F. Potter organized the first grazing branch of the Forest Service. His policies were in the interest of the small stockman





U. S. Forest Service. Photo by Prater

First threat to the power of the stockmen came in 1891 with the creation of national forests. It meant that free and unrestricted use of these lands was at an end

a statement attributed by the *Chicago Tribune* to Senator Ashurst of Arizona, during hearings in that state.

"The Forestry Bureau in the Department of Agriculture (Forest Service)," he said, according to the *Tribune*, "has become an engine of destruction and the time has come when Congress should consider whether to amend or abolish the bureau. The bureau has never moved except in the wrong direction, and as a result of its policies, covering a quarter of a century, the sheep and cattle industry of Arizona has been practically destroyed."

But Senator Stanfield made the mistake of holding a hearing in Washington, D. C., at which testimony was decidedly adverse to the contentions of the livestock industry. As a result, Congress decided to permit the Forest Service to continue its policies of range administration.

The latest attack through the Public Lands Committee of the Senate in the 80th Congress is no flash in the pan. Preparations have been long and careful. They were initiated under Senate Resolution 241 in the 76th Congress in 1941. Senator Pat McCarran of Nevada, was then appointed chairman of a new committee of investigation which has been steadily working to accumulate evidence to be used as the basis and support for proposed legislation. These hearings, all in the West, may be found in nineteen volumes of testimony and four reports (Report

404, 78th Congress, Parts I and II, and Report 808, 79th Congress, Parts I and II) with a final report dated January 31, 1947.

The significance of this action is more readily understood if something is known of the history and fate of the grazing lands lying within the public domain outside of the boundaries of the national forests. For what has already happened to these lands is plainly written for all to see. Also, it is in the fight for absolute control of these lands, an area of 170 million acres on which grazing is the predominant use, that public interests are threatened with extinction should the stockmen's program be successful in the present Congress. The backwash from such a tidal wave could well undermine the integrity of the national forests.

First, however, it is important to look closer at the forces which moulded the stockmen's belief in proprietary rights to the range, which is the sparkplug of their campaign. Their attitude, convictions and codes of conduct have roots deeply buried in past tradition and the history of settlement of the public lands, dating back to pre-revolutionary times.

In the western movement of the American colonists the settlers carried with them the habits of two centuries of struggle with the forest. So strong were these ingrained traits that when treeless prairies were encountered in Illinois, the first emigrants avoided open grasslands and

strung their clearings along the timber belts of rivers and tributary streams. The rush to file on prairie homesteads did not set in until the 1830's when a few adventurous souls found methods of digging better wells, and the sod-breaking plow came into use.

When farms must be wrested acre by acre from the forest, and crops are fenced, the pattern of land use has little room for roving stock, unless climate and the forest itself permit of supplementary grazing. Neither forest nor climate favored the open range in the northern states from which these early settlers emigrated. Nor was there fundamental change in the pattern of settlement during the transition from forest to prairie—when the tide of pioneers rolled over Iowa, southern Minnesota, the Dakotas, eastern Kansas and Nebraska, Oklahoma and the black soils of eastern Texas. The homestead of 160 acres was all that a farm family needed or could properly manage in that period.

Soon, on the outer fringes of the prairie, the settlers came upon a land that appeared too dry to farm. So they regarded it as a desert. What they did not realize was that here in the Great American Desert they had encountered a region similar to the rolling plains of central Asia and Mongolia, from which our racial stock had sprung. The true desert existed only in the hotter and dryer reaches of Nevada and the extreme

Southwest. Elsewhere the surface was closely covered by a sod of many kinds of grasses highly nutritious, drought resistant and self curing on the stem.

Here, had they known it, was one of the three great continental regions of open grassland—the others being in Asia and South Africa—extensive enough to stamp its character on the animal world which this forage supported. In North America, the buffalo herds and their associates the antelope were living proof of the adequacy of the herbaceous food supply.

But these pioneer farmers from the North called it desert and went about their task of experimenting with dry farming on the prairie. Perhaps few, if any, realized what was brewing in this land they termed worthless and that the day was to come when there would be conflict—conflict with the stockman.

For out of the South another type of settler was on the move—cattlemen trained in the saddle on the free range of the piney woods. These men, thoroughly familiar with their trade, flooded Texas after the Mexican War of 1845, and with them dawned the era of the longhorn, the big ranch and the cowpuncher. The modern cattle industry of the West was on its way. And so was the struggle for possession of the free range.

Sheep were alien to these southern bred individualists who developed the great ranches of the Texas plains. And although sheep favor the mountains, even the desert when it springs into life after seasonal rains, and prefer a variety of small plants, weeds and brush to a straight grass diet, there was enough overlapping of the range to arouse the ire of the cattlemen. Besides sheep smelled bad—and cattle would not graze on ground invaded by sheep. But they were profitable—and their numbers increased. As a result, and because there was no overhead control, issues were settled by resort to private range wars which bred such desperadoes as Billy the Kid.

Next to sheep, the cattlemen hated the settler who fenced and plowed the range and tried to acquire title to water sources.

In this reign of lawlessness, possession of the range went to the strongest. On the public domain outside of the national forests, this condition prevailed down to the year 1934. Violence decreased as the more powerful stockmen acquired title to land controlling the sources of water and range headquarters, and emerged

from the struggle with "rights" to fairly well defined ranges on the public domain which they sometimes fenced—rights which tended to harden into absolute title under the age-old laws of usage.

Thus the first transition, from wooded to prairie country, presented no such difficulties as this second great adjustment from prairies to plains. The soil of the more arid regions was rich in mineral foods. Water was the limiting factor for the pioneer farmer. In the recurring cycles of wet and dry seasons, crops could be raised on the upswing of rainfall, only to fail with bankruptcy and abandonment of homesteads when dry seasons again set in. The boundary between permanent range and prosperous agriculture became a no-man's land strewn with casualties.

Permanent use for stock raising was indicated as a sound economic land policy for a residual area, unfit for agriculture, and non-irrigable, which comprised about 400 million acres lying in eleven western states. Could this new problem be solved solely by reliance on private initiative, which had surmounted the obstacles of the woodlands and the prairies? And can grazing on the treeless public domain be permanently segregated from grazing within the national forests?

It was not by accident that the Forest Service found itself deeply involved in the task of controlling the use of the grazing resource within the national forests. Grazing as a dominant natural use of land is found to prevail only in semi-arid regions, where rainfall is not sufficient to support dense tree cover. But forage in quantity and quality sufficient to support a profitable stock industry extends from the open range into areas of timber adjacent to these grasslands—areas which grow trees of hardy drought-resistant species in open stands, under which grasses compete with pine and juniper for survival. In meadows among these pines, and on mountain ranges above timberline, grass and other succulent herbage offer summer grazing to sheep and cattle. Many kinds of brush, termed browse, the favorite food for deer, are prevalent over much of the drier portion of the forested areas and are eaten by livestock. Only in the dense rain forests of the Pacific Northwest and the white pine belt in Idaho does the western forest completely crowd out grazing possibilities.

Forage for livestock is found to a greater or lesser extent over eighty

percent of the national forests, which comprise 137 million acres of western publicly owned lands. The control and regulation of the use of this resource is inseparable from the management of the timber crop, water conservation, irrigation, wildlife, and recreation. National interests and public support have enabled the Forest Service to enforce regulatory control of grazing, not merely to prevent the destruction of the range but to avoid damage to reproduction of valuable tree species. Irrigation districts, drawing their lifeblood from forested watersheds, strongly support the service in its efforts to control excessive grazing and subsequent erosion and silting. Wildlife, chiefly deer, elk, moose, mountain sheep and goats, finds a reservoir of strength and sustenance in the national forests, and since control measures were inaugurated have, with the exception of the mountain sheep, increased steadily in numbers, until in many regions the problem has become one of removing the surplus which was destroying the browse range and eating themselves into starvation and decimation.

While cattle and sheep concentrate largely on grass and herbs, and less extensively on browse, and deer eat grass in quantity only for a short spring period, yet there is overlapping in places, especially with elk, whose diet more nearly resembles that of cattle. These conflicts require arbitration by an overall authority.

Parallel with the development of control of livestock on the national forests, free and unregulated grazing continued on the remaining public domain under the Department of the Interior for twenty-nine years before any remedial measures were taken. During this period, between 1905 and 1934, with no restraint except force and the monopoly of possession, overgrazing continued unchecked and the free range steadily deteriorated.

A report on the western range was issued by the Secretary of Agriculture in 1926 in which it was estimated that forage on fifty-five percent of the *entire* range had less than half its former value. Only fifteen percent of the total area was in reasonably satisfactory condition. But on that portion constituting the unreserved public domain, eighty-four percent had lost more than half its forage value, and the entire area had been depleted an average of sixty-seven percent. The national forests, as a result of better management, showed

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THE SECRETARY STANDS FIRM!

**Agriculture's Clinton P. Anderson rejects proposal of Barrett Subcommittee
for three-year moratorium on livestock reductions on western national forests**

Two of six proposals for changes in the administration of national forest grazing policies were rejected by Secretary of Agriculture Clinton P. Anderson on January 13. The rejected proposals, made by a subcommittee of the House Public Lands Committee, headed by Representative Frank A. Barrett of Wyoming, following a series of hearings in the West (see page 516, November 1947, issue), called for a three-year moratorium on livestock reductions on western national forests, and the establishment of a system of appeal boards to "represent fully the interests of the general public as well as the permittees and the Forest Service" in dealing with grazing and livestock operations. The remaining four proposals were accepted.

In turning down the three-year moratorium on adjustments in permitted numbers of grazing animals on the forest ranges, the secretary stated that he was "convinced the overgrazed conditions on many national forest ranges are too serious from the standpoint of both watersheds and forage to brook the delay." He added his "regret that the committee did not follow my recommendations that they take time for trips out on the range to see what we are talking about—examples of serious overgrazing, needs for reseeding, range improvements, and better management by the permittees."

The Barrett committee had said in its report to the secretary on October 8 that "the continued scarcity of beef for domestic consumption and to supply world needs with consequent higher prices," made, in its judgment, adoption of the proposals imperative. In his reply the secretary pointed out that the possible effect of the national forest range-reduction program on the nation's meat supply can easily be overstressed. If all the ranges on all national forests were closed to grazing it would remove less than one percent of the nation's total animal-months feed requirements, he said. Over the three-year "test

period" recommended by the committee, the proposed reductions would remove only about two-one-hundredths of one percent of the nation's beef feed requirements. "But," the secretary said, "regardless of the proportion, the policy of stocking ranges only to their capacity will contribute most in the long run to the stability of the world meat supply and agricultural production."

The secretary said that he understood the proposal for appeal boards to mean that such boards would have authority for final decisions. If the boards were to have advisory responsibility only, he declared, the proposal would have considerable merit. But it would not be good public policy, he concluded, to establish boards authorized to override decisions of the Department of Agriculture relating to the government's own property. Interests of the permittees are safeguarded by the procedures now in effect, he added.

A proposal for more positive and affirmative encouragement to stockmen to cooperate with each other and with the Forest Service in improvement of ranges was accepted by the secretary. Such encouragement he declared, has long been a working policy of the Forest Service when the proposed improvements are consistent with the objects of good range management.

Hearty approval was given the committee's proposal that "all conditions required of a permittee or imposed upon him, or agreements or promises made to him, by forest officers in connection with his grazing permit be in writing and their validity recognized by any successors to such officials." This, said the secretary, is "good administration." He indicated that such commitments should as a general rule have a time limit.

Another proposal approved by the secretary would entitle stockmen to a record hearing and representation by counsel in matters affecting their preferences and permits. It has al-

ways been the practice to recognize legal counsel in matters affecting grazing permits, he said. "We shall be glad to adopt such an arrangement formally."

The sixth proposal calls for giving consideration when making adjustments in permitted numbers of livestock to the economic conditions affecting the permittee's livestock operations and to the practical effect of proposed reductions on the local community and its tax structure. Further, it calls for due consideration being given to the opinions of experienced and practical stockmen and community leaders. This proposal was acceptable to the secretary.

In addition to its formal proposals, the committee had suggested in its report the desirability of amending the National Forest Act of 1897 to provide specifically for grazing as a basic use of national forest lands. The secretary pointed out that other important uses or values of the national forests also are not mentioned in the act which gives the Department of Agriculture broad authority to "regulate the occupancy and use" of the national forests. Any amendment of the act to recognize grazing would give rise to demands for recognition of other uses as well. It would be desirable, the secretary said, to consider legislation to authorize the issuance of ten-year grazing permits, which now have no firm legislative basis.

All the proposals to which the secretary agreed except that of placing informal agreements between permittees and the forest officers in writing, are already part of the established policies of the Department and of the Forest Service. It is to be expected, however, that the secretary's written reply to Representative Barrett will serve to add emphasis to their consideration by field employees of the Service.

On those matters affecting the preservation of national forest grazing lands both for forage production and watershed use, the secretary has taken a firm stand for the public good.

NEW ENGLAND'S ANSWER TO THE SMALL WOODLAND PROBLEM

By JAMES B. CRAIG

UP in New England they are putting to a test the sixty-four dollar question in the management of small woodlands. It is this: is it good economics for the average woodland owner to employ a forester to handle his forest properties? Or, put another way, will the technical know-how of a competent forester, hired to do a job, put more profits in the owner's pocket and more producing trees in his woodland? If the answer is yes, important ground will have been gained in the solution of this key problem in American forestry.

The reason can be simply stated. More than four million owners of small woodland properties, mainly farmers, control fifty-seven percent of the nation's commercial forest land, and the Forest Resource Appraisal of The American Forestry Association made it clear that not more than ten percent of these properties are operated on a sound forestry basis. Advice and technical assistance to these owners is the core of national as well as many local programs. But these programs, whether state, private or federal, are designed for the most part to provide this aid without cost to the owner—programs of education to interest him in achieving more productive woodlands and on-the-ground aid to inform him of the rudiments of management so that he will be more capable of doing the job himself.

These all-important programs have gained great impetus since the war. But leaders of the Massachusetts Forest and Park Association felt that they did not go quite far enough. With characteristic Yankee ingenuity and foresight, they reasoned that what the average private woodland owner really needed was a forestry agent to relieve him of the details of management—a service he should be willing to pay for from increased profits from his woodland.

So practical did this approach seem to association officials that they asked a committee of woodland owners, wood manufacturers, business men

and foresters to appraise the small holdings problem in the region and to recommend action. The committee's report revealed that three out of every four acres of the forty million in New England were better suited for tree growing than for any other use. Also, that the great bulk of the area was in small ownerships. It was found, too, that the wood-using industries of the region, with an annual payroll of \$250,000,000 were importing seventy-five percent of their raw material—that the average forest acre in New England was producing only about 100 board feet annually, or less than a third of its capacity under proper management. Small owners, usually because they were not well informed on forestry matters, continued to sell entire woodland tracts, including young and immature timber, for clear-cutting. Not infrequently, they sold this timber for less than market value.

To the committee the course was clear. The association should go directly to small woodland owners and

sell them on the idea of forestry. To the best of their recollection, members of the committee said, the Bible contained no reference to the disciples sending posters or printed material to heathens in need of aid. The disciples always sent a man. And taking cognizance of the New England temperament which has a healthy respect for sound business propositions and tidy bank accounts, the committee proposed setting up a foundation which would make it possible for able foresters to approach the owners with a proposition to manage their properties on a paying basis.

The result was the New England Forestry Foundation, set up under Massachusetts law as a non-profit corporation for the purpose of bringing private woodlands under management by giving the owners complete forestry service at cost. The plan of operation was to establish "forest management centers" throughout the region. A management center meant that a forester would be so located that he would be able to give service to woodland owners in a designated area, or district.

At the present time, a forester is assigned six or eight townships, or an area possibly of 200 thousand acres, depending on the amount of business obtained. This area will undoubtedly be reduced as more centers develop. The forester is expected to get enough work in his district to keep himself and one or more forestry crews regularly employed.

This was a new approach to the problem. And as Harris A. Reynolds, secretary of the New England Forestry Foundation commented, "We had no precedents to follow."

In each management center crews, which are called forestry companies, are organized and trained to do any kind of work from tree planting to logging. So far as possible these forestry companies are managed by foresters operating as private contractors, and not in the pay of the foundation. However, they perform work for clients of the foundation and are subject to its direction. Thus, while



Harris A. Reynolds, secretary of the Massachusetts Forest and Park Association, mainly responsible for the Foundation

the foundation assumes full responsibility for the management of the client's property, it remains a professional and not an operating agency in competition with local operators.

The principle of the plan—and it is working—is that foresters who are good mixers and have had the pedantic edges rubbed off by rigorous training courses, make their homes in the communities in which they operate. Thus they are in a position to go directly to woodland owners as neighbors and as responsible businessmen who have a stake in the community.

"Look here," the forester can say to Farmer John Jones after admiring his corn crop and perhaps sampling the hard cider in his cellar, "you have a valuable piece of forest property. Why not let me put it under management? I can help you make some money—more, I believe, than you have made from previous timber sales. For example, when you had that upper tract clear-cut five years ago you sold the timber below its real value. That's money lost. And what is more important, that tract is now unproductive—no more salable timber. By putting your remaining woodland under management so that not more than thirty percent of the merchantable timber will be taken out on the initial cut, you will have future cuttings at intervals, say, of five years. This means maximum and continuing profits from your forest—even after paying a fair price for my services.

"All operations, of course, would be with your approval—and it is a fixed policy of the New England Forestry Foundation that you be paid for your timber or other products before a single tree is cut."

That New Englanders like this kind of talk from people they know and are coming to look upon as neighbors is proved by results. Up to December 1, 1947, the foundation had 172 clients whose woodlands are located in ninety-five townships in four New England states. Most of the work has been done in New Hampshire where three centers are in operation. On the 58,000 acres for which management plans and woodland reports have been prepared for clients, there are 118 million board feet of timber valued at \$866,000. Management agreements have been procured and work is now in progress on 12,000 additional acres, which should bring the stumpage value under management to well over \$1,000,000. The foundation has marketed more than five million board feet for its clients.

Yes, the foundation plan has struck a responsive chord in New

England. To begin with, it is a business proposition and the owner is shown how he can make more money from his woodland over a longer period of time. The cash element also appeals to people—somehow it puts the matter on a tangible and stable basis. New Englanders, who have a native toughness of mind with a shrewd bent, have a fondness for a business dicker and will pay a man well for fair value received. On the other hand, they have a tendency to develop a suspicion of "something for nothing."

The foundation now has eight foresters on its payroll and four others are directing forestry companies. It is in the process of developing six forest management centers in three states—and the seventh is being organized. In five of these centers the resident forester is already balancing his budget. When a new center is started it takes time for the forester to get acquainted and to adjust himself to local conditions, during which period he must be financed by the foundation.

"The forester is the key of the foundation," Mr. Reynolds explained. "It is the plan of the foundation to put the resident forester of a center in the position of building up his own business—a plan that appeals to residents of the communities in which the forester works. Its success, and his, will depend as much upon his business ability as his knowledge of forestry. As Dr. C. A. Schenck, the well known German forester, once so shrewdly remarked, 'a good mixer in that job will do better than a man with two doctor's degrees in the science of forestry.'"

Very few young foresters who apply for jobs with the foundation have had logging experience. Consequently, the foundation has adopted a training course for all resident and production foresters. While this course is flexible, depending on the previous experience and adaptability of the man, in general it consists of three months as laborer in a crew and in directing logging operations, six months as an assistant to the resident forester and three months in the selling of forestry services to prospects and carrying the jobs to completion. He is then ready for a try at running a center of his own. The training course may seem a little rigorous to

Yankee ingenuity is behind the New England Forestry Foundation, which is proving beyond doubt that the owners of small forest properties will pay for forestry when convinced it means money in their pockets and more producing trees in their woodlands



Mesavage

This Boston University tract is one of 172 now under management by the Foundation

the young forester, who is static with textbook knowledge when he comes out of school, but it is the only way the foundation has yet discovered to teach the language of forest economy.

The starting salary of the resident forester at present ranges from \$2,000 to \$2,600 a year. A yearly budget is set up for each center, which consists of the salary of the forester, operating expenses and a sum of \$500 for general overhead. At the end of the year the forester receives as a bonus eighty percent of the net earnings, if any, above the budget. His salary for the next year is then increased by fifty percent of the bonus received. Thus, in effect, the resident forester is given an opportunity to develop a business of his own, subject to the policies and general supervision of the foundation. There is no question at the end of the year regarding increases in salaries—the record speaks for itself.

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Recent discovery of damage caused by Douglas fir bark beetles in Coos and Douglas counties, Oregon, was a little like discovering that a scarf-knitting machine suit has suddenly gone berserk with a double-barreled shotgun. In the past, the Douglas fir beetle had been ignored or shrugged off as relatively harmless. Today foresters are hastily revising their opinion.

An estimated one billion board feet of prime timber in the two counties is dead or dying. The killers are these indifferently-regarded insects, no larger than the head of a match. The extent of their invasion has led investigators to describe the attack

as the most destructive the region has ever known.

The beetles' activity is not new. After the Tillamook fire of 1933, armies of the winged insects swarmed savagely from the fire-ravaged area and in three years killed 200 million board feet of timber the flames had spared. In the present case it is worse—now it's a billion feet and foresters are wondering how great the loss will be when the next outbreak comes.

Tomorrow's threat becomes immediate when foresters, normally the most conservative of men, report, "No condition similar to that prevailing in sawtimber stands on the upper drainage of the Coos and

Millicoma rivers has previously been recorded."

Attacks of this obscure bark beetle occur in cycles, and virulence may extend over several years. The most recent flooding wave of the beetles in Coos and Douglas counties is believed to have reached its peak between 1936 and 1941, coming as an indirect result of the disastrous fires in the Bandon and nearby forest areas.

What causes apprehension among foresters is the fact that new aggression of unpredictable importance may begin at any time. And there is a growing realization that a full study of this disregarded danger must be

THE KILLER

By ROBERT E. MAHAFFAY

undertaken at once if the billion-dollar Douglasfir industry is to be properly safeguarded. Thus far, only the most cursory investigation of the insect has been attempted—this despite the fact that insect menaces in general rank second only to fire as ravagers of the West Coast forests.

Although little is known about the Douglasfir beetle, its cousin, the pine beetle, has been the subject of intensive study for decades. Many of the suppression experiments conducted on the pine beetle have failed, but they led to development of what promises to be an effective and practical means of control. It is hoped that some of this experience may be diverted to studies in the Douglasfir region.

John Whiteside, associate entomologist with the federal Bureau of Entomology and Plant Quarantine in Portland, Oregon, has been closely associated with pine beetle control work in the past.

"Once the pine bark beetle attacks a tree, there is no known way of destroying the insect," Whiteside said. "We tried every way previously used, recommended, or suggested. We tried felling the trees and burning the bark. We tried sun-curing. We used trap trees—that means deliberately falling trees in the hope that the beetles would fly to them so we could burn the trap.

"In an effort to eradicate the population we logged out the infested trees. We experimented with chemical injections and radio waves. We tried passing high voltage electricity through the trees. Not one of these methods proved to be a practicable solution to the problem.

"Yet, our efforts led to eventual success. It was discovered that the pine beetle showed a definite preference for certain types of trees—those showing symptoms of weakness in their foliage and tops. By a light selective cutting these more susceptible types were removed and the forest made so resistant to beetle attack that losses dropped to negligible amounts. Wherever it has been tried, this so-called sanitation-salvage method of pine beetle control has reduced losses by seventy percent or more for periods up to ten years.

"We now have what appears to be a promising method for control of the pine beetle. An opportunity to undertake similar research may well develop an equally successful method of holding the Douglasfir beetle in check."

Weyerhaeuser Timber Company foresters first discovered that the Douglasfir beetle had made appalling

Dendroctonus pseudotsugae is his name, although he's no bigger than a match head. And no way has yet been found to stop this beetle which is destroying thousands of Douglasfirs in Oregon

inroads on 200 thousand acres of land owned by private individuals, the State of Oregon, the Weyerhaeuser Company and the federal government in Coos and Douglas counties. The company's research foresters estimate that 5,000 board feet of timber an acre in the overall area has fallen prey to insects during the past few decades, with the heaviest damage coming in recent years.

Called in to examine the discovery were experts Paul Keen, forest entomologist for Washington, Oregon and California, and Robert L. Furniss, entomologist in charge of the Forest Insect Laboratory in Portland. Their report served only to underline the dangerous nature of the outbreak.

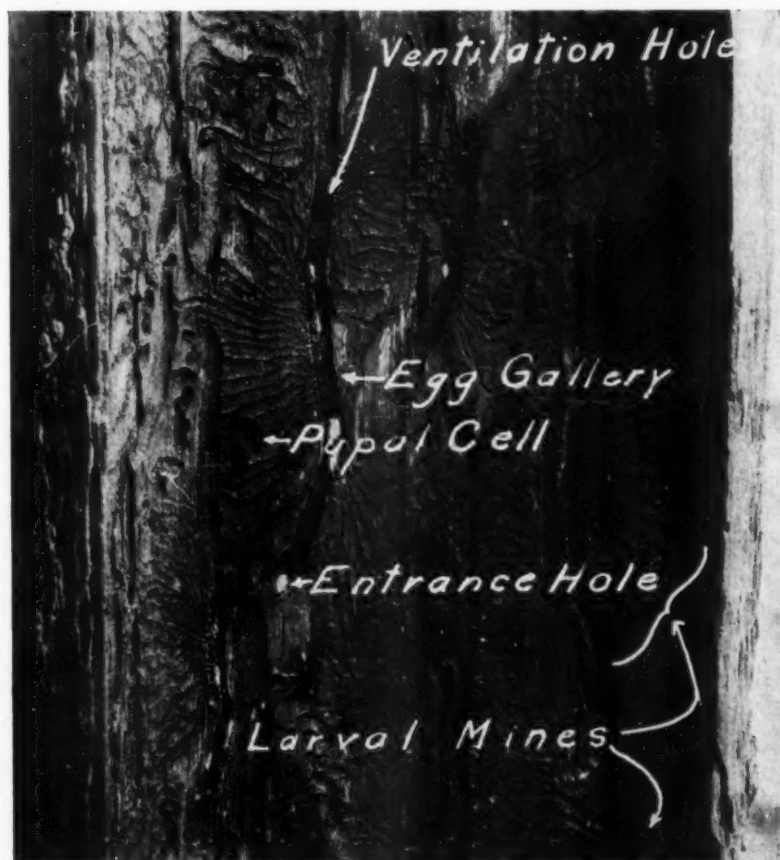
"For many years," Keen said, "the Douglasfir beetle has been recognized as the most serious insect enemy of Douglasfir in the Rocky Mountain re-

gion, but until this present situation in Oregon was brought to our attention we thought that our West Coast forests were relatively safe."

Historically, the Douglasfir bark beetle is native to the Douglasfir region. For its size it bears a staggering name—*Dendroctonus pseudotsugae*. The customary breeding place is in windfalls and injured or fire-killed trees. These do not have the resistance necessary to repel its attacks. Occasionally the beetle population increases in such overwhelming numbers that the hungry multitude pours out and engulfs great stands of undamaged trees. This is what has happened in Coos and Douglas counties—but never before has a series of attacks involved such large acreage.

Probably the most extensive Douglasfir beetle study, which, though (Turn to page 80)

How Douglasfir beetles girdle a tree. After tunneling in, they plant the spore of a fungus which soon blocks the flow of water in the conducting tissues. Larvae feed on soft, pulpy growth





WATER, ROCKS AND TREES

From these Adolph Dupre has built a profitable forest business and mountain retreat within fifty miles of Pittsburgh

By A. G. HALL

The first time Adolph Dupre saw what is now his forest empire of Seven Springs Farm, he took only a quick look. A moonshiner's rifle dissuaded further inspection.

That was back in 1927, when Dupre and a few friends were coon hunting in southwestern Pennsylvania. Their search of game led them through a grove of sugar maple trees densely grown up with underbrush but showing signs of having been recently tapped. Nearby, at the edge of a small clearing stood an old farm house from the chimney of which smoke curled lazily to the sky. Curiosity urged the hunters onward to find the smoke emanating from a "sugar whisky" still, not uncommon but rarely visited by strangers in those days of prohibition.

As he left the clearing to enter the woods again a rifle bullet clipped the twigs near his head. Although new to the ways of mountain hospitality, Dupre was quick to sense that the rifle shot was a succinct way of telling him he was unwelcome.

That shot might have deterred a less observant person, but Dupre is a forester trained at the University of Stockholm. He had seen enough of the area to convince himself that it had excellent possibilities for forest management. Most of it was second-

growth hardwood, with still quite a lot of pine interspersed. The area was well watered; in fact a clear mountain stream ran beside the moonshiner's place. The stand of sugar maple—the source of sugar for the distillery—was capable of being a forest enterprise in itself.

As a European-trained forester he was probably better able to visualize the possibilities of this area than could the native Americans who had grown up to accept the dense second-growth as being practically worthless other than as a hiding place for an illicit business.

As spare time permitted, Dupre revisited the mountains in the neighborhood of Champion, Pennsylvania.

A plan slowly developed in his mind. He investigated the ownership of the land, and when the two and a half acres on which the still had been operated appeared on the tax sale list, Dupre became a landowner at a cost of \$13.

From that meager start he has enlarged his holdings until today they take in 8,700 acres. The old farm house from behind which the shot rang out in 1927 is now a cottage at the edge of a half-acre lake, well stocked with trout. Instead of one large stone chimney, the cottage now has two. Dupre says it was necessary to build the second one to keep the house from falling down.

That cottage is one of twenty-eight,

The rambling lodge at the foot of "Suicide Slope" echoes with laughter of the skiing parties



each with its own lake, built along the stream. The other twenty-seven cottages have been built by Dupre of material harvested on his forest.

And that is where this story gets its title—Dupre has built his forest empire around the use of water, rocks and trees.

If you follow him and his workmen through the erection of a cottage, you will see that he first selects a site along the stream, deep in the forest of oak, beech, birch and maple, or possibly well up along the slope down which the stream tumbles. The first step is the building of a dam from native stone and earth to produce a lake ranging from one-quarter to one-half acre. Trees which occur in the area to be flooded are removed and sent to Dupre's sawmill at the edge of the forest where they are converted into boards for the cottage, or for poles to carry the electric line.

Native stone provides the foundations and lower outer walls of the cottage; more native stone is used for walkways and steps. Bluestone, found in abundance on a part of the forest, runs high in lime content. This is pulverized and mixed into the concrete to reduce the proportion of "store-bought" cement.

All work on the cottages is performed under the supervision of Dupre himself. He makes the plans, provides the materials, oversees the work. A crew of skilled laborers adept in the utilization of native materials with a minimum of waste are important to the success of this building enterprise. Dupre has just such men working for him. They are mountain men of many adaptations. When not engaged in building construction, they work in the forest harvesting timber, gathering maple sap, running the sawmill, or assisting in



The host greets a few of the winter sports enthusiasts who help make Seven Springs Farm a year-round recreational area

care and operation of the ski tows.

A finished house in place, beside its small lake, framed in trees, isolated from traffic and highway noises, is a thing of beauty. It is a place where the business and professional men of Pittsburgh, Washington, Harrisburg and Philadelphia may come for a week or two to recuperate. It is an ideal spot for their families to spend the entire summer while the breadwinner travels back and forth over weekends and holidays.

A finished structure costs Dupre between \$6,000 and \$7,000, but on the open market the price would be double that. He reduces costs by doing his own planning, utilizing his forest labor and above all by using

the water, rocks and trees provided by nature. Aside from the hardware, wiring and electrical fixtures which he has not yet found a way to produce on the forest, Dupre is self-sufficient.

Most of the cottages are unpainted, wood of high decay-resistance being chosen for exteriors. "The best preservative," says Dupre, "is plenty of good warm sunshine and good drainage." Locust siding, exposed to the weather for over fifteen years is still as good as new. Occasionally one of his renters—on a long-term lease—desires a stain finish, which he applies with some reluctance.

The cottages are rented on a year-round basis to members of the Seven Springs Club, an organization of sportsmen and lovers of the outdoors. In addition to the members having their own cottages off to themselves, a club house complete with guest rooms, kitchen and dining hall is provided for visiting friends of the club members. This structure is another Dupre enterprise. Flanking the long side of the building is a wide porch which overlooks a broad, low, tree-covered valley. Here the members and their guests lounge in rustic chairs—products of Dupre's woodland operations—and discuss the "big one that got away." Yes, Dupre keeps



One of 28 cottages utilizing native materials — havens of rest on a mountain stream

the stream well-stocked with fish, from his own hatchery. And each fisherman is required to keep a record of the number and sizes of fish taken on his hook. Thus Dupre is able to keep trout populations up to the capacity of the stream.

Much of the food consumed by the dwellers and visitors to Seven Springs Farm is raised on the farmland within the area. Fields of corn and wheat show up here and there in the open spots between patches of forests. Cattle graze—not in the woods, but in lush meadows which in the winter are practice ski runs for novices. Several of the cottage dwellers have followed Dupre's example and have developed small vegetable gardens.

After the first snowfall, ski enthusiasts flock to Seven Springs to participate in what is now a \$25,000 annual enterprise for the farm. Like the building program, this too started in a very modest way. But the snow falls early and stays late, making the area near the town of Champion one of the few places in southern Pennsylvania with an uninterrupted skiing season.

During the first year of operation, the ski tow was a long rope loosely strung down the mountain side. Here the skiers by main force and considerable exertion would pull themselves to the top of the hill. Later, power equipment was installed. Dupre has found that the best pulleys to carry his tow are automobile wheels with tires removed. These provide smooth channels for his rope.

The ski lodge at the foot of the main tow is an architectural curiosity. It looks like a building that just grew and rambled all over the place as the builder found logs to meet his ever-expanding ideas. And that is just how it happened. Features of the building are difficult to identify, even with the aid of an architectural guide. Many of them are unique; false beams and rafters show up in the most unexpected places. A dry flat-stone wall stands like a bastion at one end of the clubroom, separating it from the dining hall. All in all, it presents a pleasing if puzzling appearance. From a distance, as from the top of the ski run, and especially when it is seen jutting up at the edge of the woods with a long apron of snow in the foreground, it has a Scandinavian aspect.

One of the first buildings erected by Dupre, the ski lodge apparently was where he learned building construction the hard way. While the various other lodges and cottages on the area are finer architectural pieces,

the visitor can sense a feeling of pride in Dupre's manner as he views this early handiwork.

The cottages and the ski business, sidelights of the forest enterprise, are excellent indications of Dupre's philosophy of putting every resource to work, but still making it look as though it were not working too hard. The forest itself has the same appearance. Continually under management, it appears to the casual visitor never to have been touched with an ax. But still there is the sawmill buzzing away, there are the stacks of lumber piled for seasoning, and there is a truck rolling away from the mill, loaded high with wooden pallets made from scraps which many millmen would have consigned to the waste pile.

Although he makes his living by cutting trees, Dupre insists that the trees he leaves standing are far more important than those he cuts. Marking the trees for cutting is one job Dupre does not turn over to his workers. This he enjoys and prefers to do himself. Trees are removed with a view to improving the growth of the forest. Inferior species, crooked stems and mature trees alike are sent to the mill, for Dupre has found that he can discover or create a use for all of them.

One cannot talk forestry with Dupre without becoming involved in a discussion of "soil moisture." It is difficult to determine whether soil or trees are more important in his mind. Gradually one comes to realize that they are inseparable. Dupre says that he has been able to increase the soil moisture by fifteen percent since he started managing the forest. This he does by maintaining shade, creating only small openings in the forest instead of large ones, and careful logging. All power in the woods is either manpower or horsepower. He prefers not to have the soil torn up and exposed to the air by the use of mechanized equipment. By such careful methods he has accumulated a deep humus soil, ideal for the growing of high-grade hardwoods.

The sugar maple grove, where Dupre first became interested in Seven Springs, is now a major producing unit—the largest in the State of Pennsylvania. Back before 1928, when the moonshiners were using it as a source of sugar supply for their distillery, about twenty-five gallons of syrup were produced annually. Last season Dupre marketed between 1,200 and 1,300 gallons.

Extending for four miles on one side and three miles on the other, the

sugar forest contains seven miles of pipe line. The pipes descend the slopes on each side of the forest and lead at the bottom of the mountain to the evaporator house. By the use of pipes and gravity flow, Dupre has greatly reduced the work involved in transporting the sap. During the sugar season, workers on the mountain-side move back and forth through the trees hanging buckets and bringing the full ones to the convenient entrances to the main pipe line, and the sap finds its way down the pipes to the evaporating operations.

Yes, Seven Springs Farm is one of the busiest spots in southwestern Pennsylvania, but over it all there is a tranquillity that belies the industry of the area. The work is being done quietly by the water, stones and trees which Dupre has under his guidance. Not one bit of the resource is permitted to loaf on the job. The water in the mountain stream, for example, is used a number of times as it tumbles over the dam at the highest cottage and races on down to the next, and the next, and the next, each time creating a thing of beauty and utility for the cottagers. Fields are either growing crops for the consumption of the human or livestock population on the farm or are working hard to rebuild themselves with cover crops. When the fields are snow-covered, they provide sport for the skiers. Hedgerows produce berry crops or nuts.

Even the flowers are put to work. Just being beautiful is not enough, even for them. From Dupre's apiaries, the bees go forth each day to pump their capacities of nectar. Their contribution to the Seven Springs production are many pounds of honey for use on the farm and for market.

Not all that Dupre touches turns immediately to gold. His development of the forest has had some minor setbacks. These he met with hard work and with a change of approach, but always by working with nature instead of against it. For example, when he first put in a row of walnut trees that now flank the road from the guest house to the ski lodge, the squirrels persisted in digging up the seed almost as fast as he planted it.

It was then, Dupre says, "I started to work with nature instead of against it. Instead of planting just one walnut for each tree, I planted two the second time. And you may not believe it, but those squirrels came back, the same as they did the first time, but they just took one nut from each hole and left the other one to grow."

THE HOUSE BUILDER

If you think you have building problems today, read this account of historic Mt. Vernon which the First President remodeled for his bride nearly a century ago

By WARREN D. BRUSH

FORMER soldiers vexed by housing shortage discomforts may extract some comfort from the knowledge that as early as 1759, George Washington, the country's first and foremost "GI," was plagued by his own housing problems and was obliged to live in his bride's home until his own establishment at Mt. Vernon was ready for occupancy.

Washington came into possession of Mt. Vernon in 1752 upon the death of his half-brother, Lawrence. Five years later he started extensive alterations but it proved to be a slow business and reports he received from his overseers indicate that problems were not unlike those of today. Nails, for example, were extremely difficult to obtain—and there was most always delay in the search for other materials.

The impatience of the prospective bridegroom is eloquently reflected in a letter he received from his overseer, Humphrey Knight, in 1758. "As to the carpenters," Knight wrote, "I have minded em all I possibly could and has whipt em when I could see a fault. . . . The great house has took a vast deal of sawing work besides a vast deal of other work which the carpenters did, pulling down the old works and raising the new which was a long time about and pulling the nails out of the shingles. . . . The scantling for the great house is all got out of white oak which made it abundance the tediousness to get searching the woods to get all white oak. The carpenters are now getting laths to lath the great house . . . Mr. Patterson tells me he will see it is well done and hurry em about it."

Notwithstanding Mr. Patterson's efforts, letters written to Washington in the fall of 1758 express much doubt as to whether the interior of the house would be finished by the time he wished to occupy it. The delay in arrival of a shipment of

window glass from England, which had been ordered along with a considerable amount of goods for furnishing the house, also hindered its completion.

Washington was married early in 1759 and lived in Martha's home on the York River until his own house

was ready late that year. An item from his ledger indicates that the remodeling job cost approximately \$1,500—the cost representing nearly two years of work and materials furnished.

Mt. Vernon, formerly called Hunting Creek Estate, was renamed Mt.

Mt. Vernon as millions of Americans know it today. The original house during Washington's boyhood was but a story and a half



Vernon in honor of Admiral Vernon of the British Navy with whom Lawrence served in the West Indies. Lawrence built the original house, which extended between the two present chimneys, in 1743 and 1744 for his bride. George, at the age of fifteen, came to live at Mt. Vernon in 1747.

From published accounts it might be inferred that the part of the present mansion between the two chimneys is identical with the original building. However, letters written to Washington by his carpenter, overseer and friends on neighboring estates show that the structure was largely rebuilt. According to Washington's account book this work extended from December 1757, to September 1759. Mention is also made in the letters of removing the roof, sawing out new framework, raising the timbers and covering the house. Although the old floors were not removed during this period, they were later largely replaced.

By comparing statements in letters and considering them in connection with the structure of the main portion of the house as it now stands, the evidence seems quite conclusive that the original building consisted of a single story or, more likely, a story and a half. An exact model of the structural framework of the present building, formerly on exhibit at the National Museum in Washington, shows not only how the timbers at the base of the second story

Lath from Mt. Vernon was split from red oak logs



were superimposed on those of the original first story, but also how the extensions later added at each end were joined onto the main part. This enlarging of the house from a single story—or a story and a half—to the present height of two stories and a half accounts for the large amount of work required at the time. The chimneys at each end of the house were also enlarged and extended to their present height.

Washington also gave instructions for the purchase of a plank of black walnut which was to be about six inches in thickness, a foot wide and eighteen feet long. This plank was used for continuing the heavy stair rail of the main hallway above the first floor.

Fourteen years later, in 1773, Washington felt the need of a more commodious residence. He particularly desired a library, a private study and a large room for social occasions. He therefore planned additions at each end of the building—operations that were under way in the fall of that year, as indicated by the following letter from a joiner in his employ:

"I am apprehensive that in the bill of scantling that I sent you it was ordered so as to have the sleepers of both the additions to lie lengthways with the house if so they will not be right by that means the floor will be across and the gelling plank the length of the addition will now answer the intended purpose of having no heading joints in the lower floors, the sleepers need not be more than 16 feet long to join on a summer in the middle that must be layed lengthways of house, the sleepers must be the same breadth and thickness as them mentioned in the bill and the two summers 10 by 14 and 22 foot long." The writer of this letter was Going Lanphier, of New Church.

Washington was away from Mt. Vernon when work started on the southern extension—the library, over which was to be a bedroom—and Lund Washington, a kinsman, was left in charge of building operations. As in 1758, work progressed slowly, and two years passed before this extension was completed, including re-finishing the dining room and a "new room." Meanwhile, Washington was appointed commander-in-chief of the Colonial Army, and in August of 1775 wrote to Lund from Cambridge: "I wish you would quicken Lanphier and Sears about the dining room chimney piece (to be executed as mentioned in one of my last letters)

as I would wish that end of the house completely finished before I return."

Lund Washington referred to the "new room" in a letter to his chief in October 1775: "As to pulling down the plastering in the new room," he wrote, "it will not make a days odds in his doing the room. Mrs. Washington seems desirous that whatever is to be done to it, may be at once that she may get into it this winter."

By the end of 1775 Lanphier and Sears and the "stucco man" completed "the new room," the chimney piece, and the dining room ceiling, which was "a handsomer one than any of Col. Lewis's (at Kenmore House, Fredericksburg, Virginia) although not half the work on it." Lund had many other operations on the way at this time, among them the building or rebuilding of the storehouse, the wash-house, the garden walls, and the little octagon houses for seeds and tools. He was, moreover, eager to complete the addition at the north end of the mansion, but the fear of British raids and threats to burn Mount Vernon filled him with apprehension. Lund wrote to his chief in February, 1776:

"I think if you could be of opinion that your buildings would not be destroyed this summer, it would be best to have the other addition to the end of your house raised . . . but this can not be done without master workman, unless you choose to once more try Lanphier."

Washington evidently was forced to put up with this incorrigible, for in the spring of 1778 Lund still had him on hand and wrote: "Of all the worthless men living Lanphier is the greatest, no act of temptation of mine can prevail on him to come to work notwithstanding his repeated promises to do so. I wanted so much to get the windows finished in the Pediment that I might have the garrett passage plastered and cleared out before Mrs. Washington's return. Besides this the scaffolding in the front of the house can not be taken away before it is finished. This prevents me from putting up the steps to the great front door."

The appearance of a British fleet at the mouth of the Potomac halted the work for a while. Mt. Vernon was, however, spared from destruction and by the end of 1778 the addition containing the banquet hall was completed. Next the curved colonnades which connected with the smaller buildings near the man-ion were built. The portico extending across the front on the river side was also finished before Washington

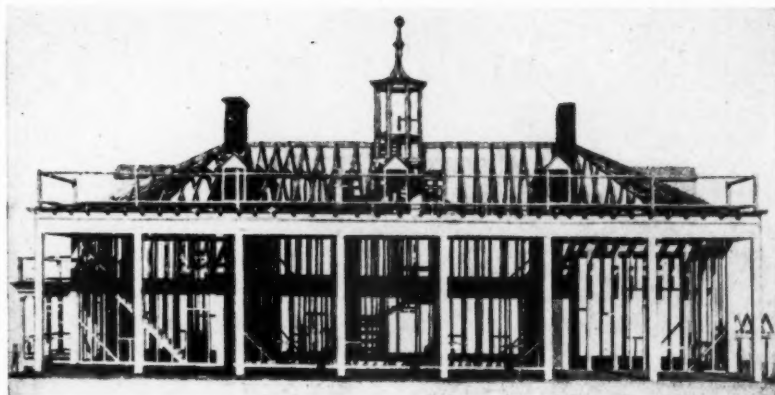
returned at the close of the war. During the building of these additions, alterations were made on the inside of the older portion of the mansion, including the dining room already mentioned. A partition which originally separated the central hall on the first floor into a front and rear hall was taken out and the panelling of the rear hall installed. This panelling is the work of a French cabinet maker and shows excellent workmanship. The boards making up these panels were fastened together edge to edge by very small wooden dowels which were let into adjacent edges and prevented the unequal warping of the boards.

The framework of the mansion is entirely of oak. Most of these framing timbers are about a foot square in cross section. They were hewn to the required dimensions, and were mortised and fastened together by wooden pins in accordance with the practice of the joiners of that day, which made a very strong structure. All the siding, sheathing, interior panelling, floors, stairways, and other finish is of local pine (probably shortleaf). This, of course, required sawing and probably was cut at some waterpower mill not far away. The so-called cabinet saws in use at that time were frequently operated in connection with a grist mill and the sawing of lumber was a slow process. The flooring was not made with tongue and groove as is the flooring of today. The upper surface and the edges were planed and the under side was left rough.

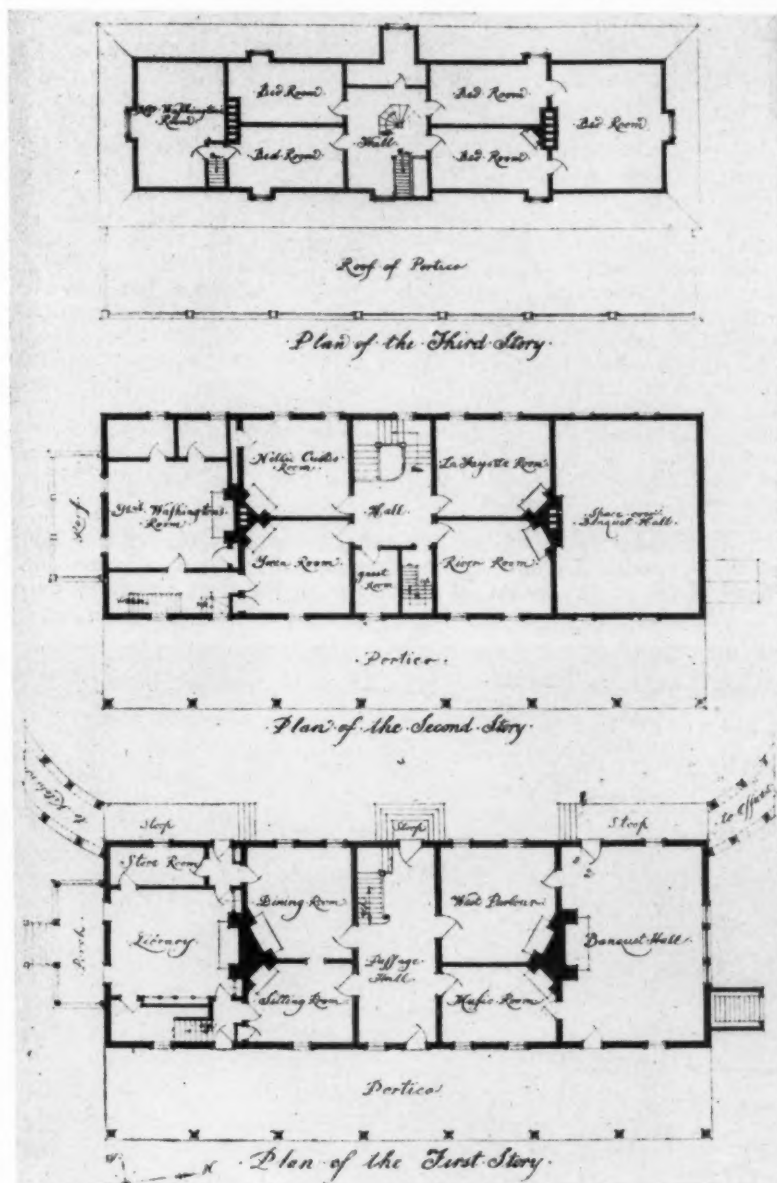
The laths were split by hand from red oak logs. They are four feet in length and are necessarily crooked, varying considerably in width and thickness throughout their length. One may well wonder how the plasterers ever obtained a smooth, even wall surface over such crooked and uneven laths. The splitting of a sufficient number of them from the log or bolt to suffice for a large house must have consumed many days. The original shingles were of baldcypress, rived from timber growing in North Carolina swamps.

One of the greatest difficulties in building at the time was securing nails, since it was necessary to make them by hand and they were consequently very crude. They varied greatly in shape and size and were used in laths, flooring, door and window frames, sheathing, siding and shingles. Plaster was also difficult to obtain. That used in the mansion was quite different from the

(Turn to page 91)



Above, exact model of the structural framework of present building, formerly on exhibit at National Museum. Below, original floor plans



The Tie Hacks' Last Stand

By DON BLOCH

A monument stands in Wyoming to the memory of a passing race—the hardy men who hewed by hand millions of crossties for the railroads of the West. Here is their story

Faced into the rising sun, on a high knoll nineteen miles northwest of Dubois, Wyoming, stands a heroic-size symbol in stone. It was placed there by those who knew them best, perhaps, and last—to perpetuate the memory of a passing race—the “tie hacks,” hand hewers of millions of crossties for the roadbeds of railroads that fingered out to the early West.

Fourteen feet high, and carved from a three-and-a-half ton block of world-famous Bedford limestone, the monument depicts the tie hack in bas-relief, with broadax and saw, sole tools of his trade. Backgrounding him are scenes of woods and river work in miniature—on one side, a skidder with team pulling a large log; on the other, a river man with pike pole in a characteristic drive pose. Beneath all runs a bronze plaque which pro-

claims that this memorial is “Erected to perpetuate the memory of the hardy woods and river men who made and delivered the crossties for the building and maintenance of the Chicago and Northwestern railway in this western country.”

Under this last word is cast the “credit line”: “Wyoming Tie and Timber Co. 1946” — and thereby hangs the tale.

Tie drives are history now. For, in the spring of 1947, R. Van Metre, president of the Wyoming Tie and Timber Company of Dubois sold out its timber operations on Brent Creek to the J. N. Fisher Tie and Timber Company. One of the last acts of the original company was the erection of the monument.

Martin Olson, in charge of the parent outfit's timber operations beginning in 1916, will continue as vice-

president for the Fisher company in an advisory capacity—the one link left with the past. Van Metre's company, however, will continue to operate the general mercantile business bought last November from the Dubois Mercantile Company at Dubois. It will also hold its Riverton property, where the company's local interests will be represented by W. H. McLaughlin, who came to Riverton in 1913 when the timber operations on Wind River were established.

Truck hauling overland, from timber sale to Riverton, is now the order. With this step the curtain falls on the last performance of what had been a big-time logging spectacle staged at the same spot for thirty-three years—the famous Wind River tie drive. Since operations began there, in 1914, on the high slopes of the Washakie division of Wyoming's Shoshone National Forest—incidentally, an outstanding example of good silvicultural practice—over 400 million board feet of timber, in the form of ten million hand-hewn and sawed crossties, had been harvested by Van Metre's company. Perhaps ninety-five percent of this timber was lodgepole pine, a thin-barked tree of fairly soft wood, not too hard to hew. Every one of these ties was purchased, under a long-standing contract, by the Chicago and Northwestern Railroad.

In 1927, the peak year, 700 thousand ties—all hand-hewn—were driven down the river. On the final drive, in the fall of last year, 150 thousand ties—none hand-hewn—were snaked around the innumerable bends of the Wind River, later to come floating into the boom of the tie company at Riverton, for “yarding,” or stacking on the plant property.

Ties cut on the forest during each previous twelve months were trucked overland the twenty miles from there to Dubois. They were then decked up three tiers deep and about twenty ties high for perhaps a quarter of a mile along the river bank some distance above the town. Afterward—usually in July or early August—or when the high water in the Wind River had receded, a driving crew of fifty or sixty men pushed or bulldozed the ties into the river and followed them down.

The monument, near Dubois, Wyoming, overlooks the original camp of the Wyoming Tie and Timber Company, its first area logged, and Wind River at the point of the start of the first river tie drive

U. S. Forest Service



Spectacular jams have occurred when the ties reached a narrow canyon that squeezes in some sections of the river a few miles below Dubois. In ordinary years, twenty days of steady driving would see the ties safely delivered into the Riverton boom, a hundred miles from where the ties entered the water.

The drive itself was never beer and skittles, with the caulk-soled crewmen lightly leaping from tie to tie as they herded the harvest down Wind River. Ties often choked the entire breadth of the river, bank to bank, making an almost solid bridge of wood. Waist deep in water oftentimes, hampered by pike poles for pushing away wedged logs, the drive crew was exposed to death at all times by crushing or drowning. In all the years of that drive, however, there was never a fatal accident.

For many years before this final blow, the trade of tie hack had been moribund—in fact, it was only by the grace of Van Metre that it had been kept alive at all. Not, let it be understood, that there was any charity involved—some sentiment, perhaps; but the truth was, the railroads, with their war years of heavy traffic, needed every tie that the woods could produce.

There was a time, of course, when all the ties in a roadbed were hand-hewn. Those were the days of the woods giants whose stories were all lumped big together and moulded into a character known as Paul Bunyan. Great camps of tie hacks, so-called, felled the trees and hewed the sticks into standard gauge ties with an economy of effort and blows with



U. S. Forest Service

Here, on the Shoshone National Forest (above) the Wind River drive began. Its destination was Riverton (below) 100 miles downstream



the broadax that nobody who hadn't seen it done would believe.

There just weren't any other ties, then. But after sawed ties came in, the companies had no special use for the custom-built variety. The sawed ties stack more easily, the indentation for tie plates could be sawed on them, and even the spike holes bored. Besides, they took a preservative treatment more uniformly.

The company wanted any and all ties, however—hand-hewed or sawed. That's why tie hacks were still at it on the woods and in 1945 for the Wyoming company, and why something over 5,000 of the total ties that went through on the last year's drive were hand-hewed.

Responsible for this thirtieth of the entire production were just sixteen men, the last remnant of a once mighty crew, on this Wyoming T. and T. sale at least. Skilled loggers all, these fellows constituted the famous Dunoir, or "Boy's Camp" of the Wind River woodsmen. They had no camp base, no bull of the woods. All were bachelors, all hard as a teak knot, and all well able and desirous of taking care and giving full account of themselves. On any given day, between March and October, they were capable of each attacking his marked-out, 150-foot-wide stack of timber at dawn, and tallying an average of thirty to forty ties hacked, peeled, parked on the strips, and out of it

by quitting time—somewhere around six o'clock.

The first tie was hewed out on this sale, among the oldest in the state, on the second day of February, 1914, by Chris Blacken, partner of John Toomey. Chris died in 1917, after forty years in the woods. Toomey was still a hale hacker a dozen years later, on the same sale. He died in 1936.

A couple of other early hackers on this 70,000-acre sale were Bill Murray and Missouri John—something. Another, Box-Car Jim Dixon, in 1932, when he was seventy-six, took leave of the old Wind River boys he'd been with for years, and signed up as cook at the Little South CCC camp, on the Little South Fork of the Cache la Poudre River on the Roosevelt National Forest. He didn't stay long, however; and, in October of the same year, hauled out and went north to the Wind River country, away back, and there built himself a cabin. He may still be there.

At last count, there were eight of the old hackers left at the bachelors' camp in the woods above Riverton. The baby was Pete Haakonson, then aged sixty-two.

All the tie hacks were piece-basis workers who worked when they felt like it, and enjoyed a freedom from factory whistles, time-clocks, and pushing — and valued that complete

independence. They were given a strip of likely timber — good stems for hackers — and were responsible each to Martin Olson, whose men from the main camp acted as skidders on the "go-devil" road. These hand-hewed ties are made by artists of the broadax: one can rub his hand along their length forward and backward without fear of picking up slivers. The hacks cut the year 'round, except for such time as they "went to town" — periods latterly grown less frequent and less likely to carry legends when they came back.

But the day of the skilled tie hack and of well-hewn ties is now all gone. Prior to the passage of the Johnson Immigration Restriction Act in 1924, the western tie camps had a steady flow each year of sturdy, young Scandinavians with woods training in the home country. After a few years in camp and learning our language, many drifted off and went to work on bridge gangs for the railroads and into construction work. So only a few of the oldtimers remained in the camps, and tie hewing became a lost art.

Up in Michigan, near Tawas, on land overlooking the Au Sable River, there is a three-man statue erected by the lumbermen of that state to commemorate the woodsmen who made its forests famous.

At Bemiji, in Minnesota, Paul Bunyan, in stone, faces the forest.

There had been those who long wished the passing tie hack to be memorialized—chief among them Olson and Van Metre of the Wyoming Tie and Timber Company, and E. E. Carter, ex-chief of the Forest Service's division of timber management.

They proposed that a life-size tie hack statue in stone be erected near the grave site of Bill Phillips, a teamster killed while trying to apply a rough lock to his sled while hauling ties to the river in 1915. His grave is on a prominent knoll within sight of the ranch, just 200 feet from the main highway (287) on Forest Service land, overlooking Wind River and the cutover area where company operations were first started in 1914.

Here the statue and surrounding plot will be taken care of permanently by the Forest Service in, as Mr. Carter, for three decades associated with Van Metre in this fine example of a sustained-yield timber operation, put it "the good Wind River country, where the pines grow and the big Swede still cuts them and drives them — with the aid of snow and snüss."

MY FAVORITE TREE

By BING CROSBY

Famous Star of the Radio and Screen



FOR sheer beauty as well as utility you can't beat the Douglasfir. Ever green, winter or summer, the Douglasfir proudly points heavenward as if to call attention to the everlasting peace above. Joyce Kilmer must have been thinking about Douglasfir when he wrote—"Only God can make a tree."

Fir trees are as essential to Christmas as Santa Claus. And yet, as if to indicate how all must be useful, the great Douglasfirs lend their wood for our ships, factories and homes.

I am proud it is the official tree of my home state—Washington.

MYRTLEWOOD LANE

By P. M. RUPERT

OREGON chambers of commerce have one question asked them so often nowadays they sometimes wonder if the whole world has become myrtlewood conscious. "Where is Myrtle Lane?" the tourists all want to know and, upon being informed, immediately chart their course for that storied thoroughfare.

Myrtle Lane is a twelve-mile section of State Highway 42 between Coquille and Myrtle Point. It is the only designated highway on earth flanked by beautiful myrtlewood trees, the leaves of which glisten so brilliantly in the sunlight they have the appearance of being wet with dew.

These trees have guarded the highway since its inception; in fact, they were there long before the roadway was even thought of—and in many other sections of southwestern Oregon as well. But it is only within recent years that travelers have been seeking them out, and appreciation of their worth and beauty can be attributed in no small measure to the gift industry which has been instrumental in acquainting people everywhere with the marvelous grain of this unusual wood.

Way back when America was young the wood of the myrtle was recognized as being of great artistic value. Wood-turners from Europe, shipwrecked on the Pacific Coast near the present town of Coos Bay, discovered myrtlewood. These men, master woodcarvers and well acquainted with the art of the Old World, were astonished when each article which they fashioned from this wood proved to be a picture-poem in itself.

Undoubtedly, had southwestern Oregon been settled by people possessing the woodcarvers' love of the beautiful, myrtlewood trees would have been appreciated and cherished. But the early settlers were more practical than artistic and whole forests of the magnificent trees were destroyed by ax and fire in order that farms and homes might cover the countryside. In the course of time remnants of the woodcarvers' art served to stimulate what eventually became a thriving gift industry.



Laws Pictures

Evergreen myrtlewood trees, with dark, rich, glossy leaves, achieve sculptured proportions along Oregon's Myrtle Lane

Oregonians were slow to acknowledge that the myrtlewood was disappearing. Strangely enough, it was a letter from a man in Illinois inquiring, "What are you doing to save your glorious myrtle trees from extinction?" that inspired an Oregon bachelor to father "Save The Myrtle Woods, Inc." This organization is now endeavoring to do for the myrtle trees what California did for the redwoods years ago. Virgin stands are being bought up as fast as funds become available for conversion into public parks.

The trees along famous Myrtle Lane are not state owned as yet. It has been suggested that some veterans' organization purchase the trees as a memorial to the war dead, and it is hoped that this may be done eventually. In the meantime, the lane invites the visitor to enjoy its beauty, as do the two or three groves which have already been acquired by "Save The Myrtle Woods, Inc."

One of these groves—the Maria Jackson Grove—had the honor of becoming the first myrtlewood park in the world. It consists of eighty-four acres situated on Brummet Creek, in Brewster Valley, twenty-six

miles from Myrtle Point. Other beautiful stands are the famous Loeb and Bankus tracts on Checto River. Later, it is hoped, still others will be added to the state park system. Oregon is conscious of the value of her scenic resources, and places its myrtle groves near the top of the list.

The beauty of the groves staggers the imagination. The trees are evergreen with dark, rich, glossy leaves. In the virgin forests they often attain a height of eighty to 100 feet. But all are not tall and columnar; some are fantastic in shape, distorted with burls—or widespreading and many-branched.

It is along the highways, far from the bottomlands, where they grow with abandon, where they achieve sculptured proportions. Here their "domes" are rounded and graceful, and they look for all the world like long lines of trimmed English boxwood. It is such trees that line Myrtle Lane and enchant travelers and natives alike with their perfect symmetry. No wonder their fame has spread throughout the land. Nor that one of the first questions visitors to Oregon ask is, "Where is Myrtlewood Lane?"

FLORIDA'S FORESTS ARE DIFFERENT

By ED. R. LINN

Not only are Florida's forests different, but the state as a whole is different from its neighbors in many respects. Florida reaches far enough south to have tropical climate and vegetation. Her boundary is far enough north to contain typical southern seaboard plant and animal life patterns. She extends westward to share in the Deep South modes and manners of life, and on the east the Gulf Stream flows close enough to spread a soft benignity over this so different state, the meeting ground of many kinds of plant and animal life.

Along with an abundance and variety of land and marine life there is a corresponding variety of man's activities. Florida is both a playground and a workshop, truly and naturally bizarre. Sponge diving is a thriving industry off the Gulf Coast. Commercial fishing and sport fishing are engaged in along the thousands of miles of coast line. Tropical mahogany, a favored wood of the old and the present day masters of furniture making, grows in the Florida keys.

For those who love to be near the ocean the miles and miles of dazzling sandy beaches provide ample room for the enchantingly beautiful homes of the rich and the modest homes of the less wealthy. Thousands of lakes dot the state. Their shores are ideal sites for winter and year around homes and playgrounds for tourists as well as for old folks who come to Florida to renew their youth. The sun shines benevolently on all. Ponce de Leon's fountain of youth has overflowed the whole of Florida.

Inland but always less than 100 miles from the gulf or the ocean, Florida carries on agriculture. Her citrus groves provide oranges and grapefruit for the East and the Middle West. The cattle industry is fast becoming an important competitor of the western range. The same kinds of vegetables that grow in Maine and Minnesota are grown in Florida. Only it's done differently down there. They are harvested in winter. North Florida raises cotton, corn and tobacco like her neighbors. In south Florida one

can pick coconuts and enjoy strange fruits found nowhere else in the United States.

Not the least of these activities is the forest products industry now making an evolutionary change before our very eyes. Man had to clear the trees from Florida land to make room for agriculture, for industry and playgrounds. However, of the total gross area of 37,478,400 acres almost 61 percent, or 22,750,000 acres, is in forest land. The remaining 29 or 30 percent of Florida has 2,760,720 acres under water; 5,557,533 acres are in wasteland; urban and suburban sites take up 705,989 acres; right of ways for railroads, roads and other reserves occupy 677,912 acres. Agriculture with its fields, citrus groves, truck farms and improved pastures uses 2,856,588 acres, plus millions of acres of forest land for cattle range.

The 22,750,000 acres of forest land support a stand of approximately 17.3 billion board feet of commercial sawtimber plus millions of cubic feet of growing trees under sawtimber size. The total wood volume, counting all the sound trees five inches in diameter and up is around 6,730,000,000 cubic feet. Florida forests are a battleground, where there is still conflict over the question of whether to grow trees or raise cattle on two or three million acres of land which by one classification is forest land and by another, wild pasture. As a result of widespread grazing most of the wood stands on 19 or 20 million acres of land. This makes problems for foresters and timber growers.

Florida's original fine forests, predominately of longleaf pine, slash pine and cypress, with some hardwoods, loblolly pine and a few other minor species, have been contributing heavily to the upbuilding of a wood-using nation. Billions of feet of fine longleaf pine timbers were sent abroad. The finest virgin red cypress went into tank and boat stock. Pole and piling makers took the straight tall pines. And on millions of acres of forest land the turpentiners cupped the trees. Their industry flourished for awhile and then shrank to present day size of about one fifth of the na-

While cattle and trees can be grown on the same area (35 counties have open ranges), closer control of grazing would aid forest management in Florida



tion's output of turpentine and rosin. Through these years of whittling down Florida's magnificent old growth forests to their present day volumes, cattle have ranged the woods and fires, set to make the grass green or as an aid in clearing land for agriculture, have added to the already heavy economic drain.

The production of sawtimber is slowing down in Florida. In 1942 the sawmills cut two-thirds of a billion feet of lumber; in 1943 the mills cut slightly over a half billion board feet and in 1944 the cut was less than 400 million. The declining trend in sawtimber cut is in contrast to the production of pulpwood which in 10 years has grown from a few thousand cords to over a half million cords. These past trends in forest production which seemingly were destined to desolate millions of acres of forest land have been undergoing a change. There is not as yet a complete about face, nor can sawlogs be grown in a year, but the forest industry, the people of Florida and the Florida Forest Service have set about to correct much that was wrong, and at the same time to supply much needed wood for the state's growing industries.

There are around 400 sawmills in Florida but only 10 or 12 of them can be classed as big mills. The remainder range from medium-size mills capable of cutting a million feet of lumber a month down to the small "peckerwood" mill that comes into production when lumber demand is good and "folds up" in bad times. The big mills are cutting out, but the smaller sawmills and more than a hundred other wood-using plants are carrying on.

There is a good market for lumber in Florida because new industries are coming into the state and the tourist business is growing. The fruit and vegetable industry needs increasing supplies of baskets, crates and hampers. The remaining old growth longleaf pines that have been "worked out" find a ready market as poles and piling.

A pulp industry, very young in years if we hark back to fountain of youth days or even to the heyday of the sawmill, now has six pulp mills with an annual consuming capacity of over a million cords of wood. More than half of its supply comes from within the state, and the rest from neighboring states. Some foresters and most men in the pulp industry believe that there is room for more pulp mills in Florida on some of the lands which a few years ago supplied the big sawmills with old growth pine.



Second growth slash pine, protected by proper fire control measures, will contribute heavily to Florida's forest economy

For a number of years portions of these lands have been under forest management including protection from "wildfire" and thus allowed to produce young trees.

Today Florida is in the rather difficult position of having to reduce her stand of sawtimber and even her total growing stock of young and old trees because of the demand for these products, while undertaking strenuous measures to get her forestry house in order.

The U.S. Forest Service reappraisal of January 1946 reveals that the growing stock of sawtimber has decreased 26 percent in the (approximate) decade since the original forest survey was made, and that the total growing stock of big and little trees has been reduced 13 percent in that period. A factual check-up 10 years from now or at some period in the future will show whether forestry measures are slowing down the depletion rate and turning the tide toward an increased growing stock.

The people of Florida and the State Forest Service have no doubt that in these past 10 years and more Florida forestry has made gains. In 1929, when forestry got under way, there were 670,000 acres under organized fire protection; today more than five and a half million acres of private and state owned forest lands are given such protection. To this can be added

another million acres of national forests and a half million more acres of other federally owned lands. The average size of forest fires has decreased about 40 percent and the percentage of burn today, contrasted with the early days of fire protection, has been more than cut in half.

Today Florida's forest fire fighters have 98 fire towers connected by over 2,000 miles of telephone lines. The state towers are tied in with 22 more towers on the national forests and with six towers privately owned and manned by timberland owners. This system has the further aid of radio control in the form of seven state radio base stations, 36 mobile transmitters and 120 mobile receivers plus four mobile transmitters and 52 mobile receivers privately owned. It does not take long to handle a fire. The average lapsed time from detection through suppression is from two hours and 30 minutes to three hours. More than 200 trucks, about half of which are owned by the state and half by private landowners, are always available to haul men and equipment to fires.

Because Florida forest conditions are varied, fire fighting is a difficult job. About 70 percent of the forest is broadly classed as the longleaf-slash pine type. Here the "rough" in the rather open forest consists of heavy thick grasses and many spots of

Florida, with her woodlands whittled down by cutting, fires and cattle, now spends a million dollars a year on forestry with more and more landowners practicing forest management

dense undergrowth. Effective fire control in this type of forest land requires the use of broad fire lines. The fire fighting crews plow or replot about 25,000 miles of eight-foot-wide fire lines annually at an average cost of \$3 a mile.

More than 250 trained fire fighters, towermen, tractor and truck drivers, technicians and foresters are on the job in the Florida Forest Service to handle fire prevention and suppression. Ten years ago the service had a budget of a quarter million dollars and protected a million and a half acres from fire. At the present time the budget is over \$900,000 and fire control is extended over six million acres. Another million acres of forest land is ready to come in under organized fire protection when funds to match those of the landowners are made available by the legislature. If the men, equipment and dollars the timberland owners provide are added to the support given the service through taxes and direct assessments, forest fire control work runs to a million dollars a year.

While all this expansion in fire control was going on in the woods, the service developed an excellent public relations department. Educational work is carried on among farmers and other timberland owners by means of films, lectures, meetings and demonstration plots. Conservation and forestry has been put in the course of study for the schools so that the men and women of tomorrow will know about Florida forestry and take home what they learn and teach their parents.

Planted demonstration forests are a common but inspiring sight along Florida highways. Started in a small way back in the late 20's, there are now over 100,000 acres in privately-owned forest plantations. Most of them are of rapidly growing slash pine which produces pulpwood, naval stores or sawtimber. There are many more acres to be planted, but the Florida Forest Service men have the satisfaction of knowing that their work has induced forest landowners to plant trees relatively as fast as the federal government is planting on the national forests. The ratio of planting on private land to the total privately owned forest land is practically the same as the ratio of planting on national forests is to their acreage.

Most of the seedling stock to plant these 100,000 acres has come from the state forest nursery at Olustee. In 1941 over eight million seedlings were shipped. Owing to the war and a few bad seed years planting has been cur-

tailed. Present plans are to start another nursery in the western part of the state to help meet the increasing demand for slash pine seedlings.

Fire prevention and suppression are by no means all there is in Florida forestry. No very accurate appraisal of forest practices of 10 years ago can be made, but a few comparisons indicate the progress of the decade. Ten years ago industry employed five to 10 technical foresters. In 1945, 30 or more foresters worked for industry, and now that technically trained men are returning from the services, the number is increasing steadily. Back in 1935 there were, all told, around 30 foresters in the several fields of state, national and private work. In 1945 more than 70 technically trained foresters worked in Florida, and the number is growing.

Forestry is being practiced on 10 million acres or on approximately half the lands classed as woodlands. Over five million acres is under fairly intensive management. The acreage is made up of three and a half million acres of privately owned lands; a million acres of national forests and the balance in other federal and state owned lands. The other five million acres under extensive forestry consists of private lands under fire protection, some former woodlands and lands awaiting inclusion in the state fire protection system which in the meantime enjoy local fire protection.

Impetus was given to the practice of forestry in Florida by the passage of the tax law of 1941. Before that time railroads, other public utilities and land, especially forest land in sizable tracts, paid an undue portion of the taxes. A complete revamping of the tax law in that year, requiring a valuation of 100 percent on all property and a corresponding reduction in millage rates, corrected a great many tax inequities. Thereafter forest landowners were able to plan for long range forest management. Back taxes were paid up and today there is little tax delinquent land on the books.

For many years Floridians have tried to mix cows, fire, lumbering and turpentine. Although an expert can work with such a conglomeration and get results, most of those who engaged in these activities failed to cooperate with each other and results have not been good for Florida forests. At practically every meeting of the legislature there is discussion of the problem of open range, but no action.

Meanwhile, some of the counties have taken their own measures. Before 1935 only three counties had

fence laws. In the period 1935-1945, three additional counties required that cattle be fenced. In 1945-46 nine more counties decided through referendum or otherwise that cattle should not roam at large. Today 15 counties require cattle fencing, 17 counties have partial restrictions and the remaining 35 counties have open range.

The rapid improvement in the breeds of cattle, the drive for improved pasture land and the increase in Florida's tourist and winter resort business together probably will bring about fencing of cattle in all parts of the state within the next few years. While cattle and trees can be grown on the same area in Florida, it will certainly be an aid to forest management if the landowner has control over how many cattle and whose cattle shall roam his forest.

Gum farming or turpentineing has not been marking time in the last decade. The gum naval stores industry has made advances in its woods techniques and management and in the refinement of its products. The U.S. Forest Experiment Station at Lake City, set up especially for naval stores research, has shown the way for the industry to make a comeback. A modern turpentine still no more resembles the old time still than an ox-cart compares with an automobile. Chemical development and research loom large in this industry.

Good gum farmers no longer work trees below nine inches in diameter. The government has encouraged this action by small incentive payments. Simple improvements in practice have increased the yield per tree and reduced the cost of the products. Moreover the gum farmer operating on his own land now grows pulpwood, ties, poles, piling, and sawtimber, runs some cows in the woods and gathers his gum crops, all the time guarding against fire. He may do some "prescribed" burning to keep down fire hazard but he is "agin" wildfire.

Some gum farmers with an eye to the future have set out plantations for turpentine operations. A few such plantations are already being worked. The high number of trees an acre and the shortened walking space between trees reduces the unit cost of production. A naval stores crop consists of 10,500 faces so there is much walking between trees to work a crop spread over an open-grown forest. In contrast, a plantation may have over 300 trees an acre. A unit of naval stores, 50 gallons of turpen-

(Turn to page 94)

AFA ELECTS NEW OFFICERS

WS. ROSECRANS of Los Angeles, California, has been re-elected president, and I. J. Roberts of Washington, D. C., treasurer of The American Forestry Association—both for a term of one year. It is Mr. Rosecrans' eighth term, Mr. Roberts' fifth. Re-elected to the Board of Directors were Samuel T. Dana, dean of the School of Forestry and Conservation, University of Michigan, and William P. Wharton of Massachusetts, president of the National Parks Association.

Four new directors were elected. For three-year terms were George W. Merck of New Jersey, president of Merck & Company, Inc.; Charles H. Flory of South Carolina, president of the Association of State Foresters; and Ernest L. Kurth of Texas, president of the Southland Paper Mills, Inc. O. D. Dawson of Texas, vice-president and manager of the Agricultural Department, Second National Bank of Houston, was elected for one year to fill the unexpired term of Louis Bromfield of Ohio, who retired from the Board in 1947. Other retiring directors are Bryce C. Browning of Ohio, Warren T. White of Virginia and C. P. Wilber of New Jersey.

Twenty-one honorary vice-presidents were elected to serve for one year.

All officers were elected by referendum vote of the members of The

American Forestry Association on nominations by the Committee on Elections, consisting of Lloyd E. Par-tain, of Pennsylvania, chairman, Stanley F. Horn of Tennessee, and George R. Phillips of Washington, D. C.

Mr. Merck brings to the Board of Directors a career marked by outstanding public service. Awarded the Medal for Merit for his wartime biological services, he just recently was awarded the Chemical Industry Medal for outstanding achievements in that field. A native of New York, and a graduate of Harvard University, he has been president of Merck & Company, manufacturing chemists, since 1925. He is also president of the Board of Trustees of the Merck Institute for Therapeutic Research. During the war he was director of the War Research Service in charge of biological warfare, and later became special consultant to the Secretary of War and chairman of the U. S. Biological Warfare Committee. Long interested in natural resource conservation, he is a director of the Regional Plan Association of New York City, vice-president of the New Jersey State Chamber of Commerce and, before the war, was a member of its Highways and Parkways Committee. He is a fellow of the American Geographical Society.

Charles H. Flory, president of the Association of State Foresters, is state

forester of South Carolina. A native of Pennsylvania and a graduate of the Pennsylvania State Forestry School, he began his career in that state. Since 1924, however, he has been identified with forestry in the South, mainly with the State of North Carolina, as acting state forester, and with the U. S. Soil Conservation Service. He was appointed state forester of South Carolina in 1944. Mr. Flory, always active in his profession, is a



Ernest L. Kurth



George W. Merck



Charles H. Flory



O. D. Dawson

member of the Council of the Society of American Foresters.

Ernest L. Kurth has been identified with forest industry in the South since 1907. At present he is president of four lumber companies, all in Texas, his native state, and in 1938 organized the Southland Paper Mills, Inc., at Lufkin, the first manufacturer of newsprint from southern pine.

A leading advocate of industrial forestry, Mr. Kurth has long been active in promoting better management of forest lands in the South. He has served as president of the Texas Forestry Association, the Southern Pine Association and the East Texas Chamber of Commerce and, at the present time, is a director of the Texas A & M Research Foundation, the Southern Pine Association and the National Lumber Manufacturers Association. He is a graduate of Southwestern University in Texas.

O. D. Dawson, manager of the Agricultural Department of the Second National Bank of Houston, has devoted most of his career to soil con-

servation. A graduate of Texas A & M College, he served for a decade with the U. S. Soil Conservation Service in the Southwest. In his present position he travels extensively over the state in the promotion of better soil conservation practices by farmers and ranchers.

Honorary vice-presidents elected for 1948 are: R. E. Barr of Illinois, vice-president of the Illinois Central System; Raymond J. Brown of New York, editor of *Outdoor Life*; C. S. Cowan of Washington State, chief fire warden of the Washington Forest Fire Association; Honorable James H. Duff, Governor of Pennsylvania; Milton S. Eisenhower of Kansas, president of the Kansas State College of Agriculture and Applied Science; Mrs. Montgomery Hare of New York, chairman of the Conservation Committee of the Garden Club of America; Palmer Hoyt of Colorado, publisher of the *Denver Post*; Ethel L. Larson of Michigan, chairman of the Conservation of Natural Resources Committee of the General Federation

of Women's Clubs; Frederic P. Lee of Maryland, chairman of the National Arboretum Advisory Council; Benton MacKaye of Massachusetts, president of The Wilderness Society; Fred S. McConnell of Ohio, president of the Enos Coal Mining Company; Duncan McDuffie of California, president of the Save-the-Redwoods League; L. B. Neumiller of Illinois, president of the Caterpillar Tractor Company; W. M. Oettmeier of Georgia, president of the Forest Farmers' Association Cooperative; Frederick Law Olmsted of Massachusetts; Fairfield Osborn of New York, president of the New York Zoological Society; A. C. Spurr of West Virginia, president of the Monongahela Power Company; Harold Titus of Michigan, of the Michigan Conservation Commission; Dr. Alexander Wetmore of Washington, D. C., secretary of the Smithsonian Institution; Laurence F. Whittemore of Massachusetts, president of the Federal Reserve Bank; and Vertrees Young of Louisiana, vice-president of the Gaylord Container Corporation.

The Killer

(From page 65)

valuable, is still only a beginning, was made by the late W. G. Bedard, formerly an associate entomologist with the Bureau of Entomology and Plant Quarantine. Bedard's study, however, applied primarily to conditions in the Northern Rocky Mountain region.

"Usually, the timber owner or forest manager first realizes the presence of the Douglasfir beetle when trees with faded or red foliage begin to appear singly or in groups within his forest," Bedard wrote. "Several months before this, however, the first indication of attack appears in the form of red boring dust lodged in the bark crevices or bark scales along the trunks of the infested trees."

Bedard described the invaders as reddish-brown or black, cylindrical in form, and rather stout.

"The adult females," he continued, "lay eggs which hatch into small white legless grubs or larvae with small brown heads. They vary in size according to their age, from the size of a sharp pencil point when first hatched, to nearly the size of the adult beetle. The larva transforms into a white pupa which is an intermediate resting stage before the transformation into the adult beetle occurs."

"Douglasfir beetles emerge from the trees or logs in which they developed, and fly to uninfested ones. Upon

arrival at the fresh host material, each female, followed by a male, bores directly through the bark to the wood surface, and then excavates an unbranched longitudinal egg gallery up the tree in the inner bark, grooving the wood slightly.

"The beetles bring the spores of a blue-staining fungus which develops in the conducting tissues of the tree, and blocks the flow of water, thus assisting the beetles to girdle the tree, which dies in a few weeks."

Killing of the trees is attributable in part, also, to the longitudinal galleries or mines dug by the larvae. The larvae feed on the cambium layer—the soft, pulpy growing layer of the tree — savoring the sugars and proteins it contains.

The effectiveness of DDT is regarded with skepticism by those who have had first-hand experience. "Thus far, no acceptable means of spraying for bark beetles has been devised" Whiteside explained. "A ten percent DDT solution will prevent attacks on logs, although the duration of effectiveness is not known. But the logs have to be down, where you can get at them. You can't spray standing trees 200 feet high."

"There is only a very short time in which to work on the insect. Any chemical must be applied while the beetle is in flight—normally in the spring or early summer."

Actually, this tunneling match-head remains largely a mystery. And the emerald needles of the Pacific Northwest's major resource continue to turn to a yellowish-green, to sorrel, to reddish-brown.

H. V. Simpson, executive secretary of the West Coast Lumbermen's Association, emphasizes the threat that continued insect depredations present to an effective sustained-yield forestry program. "This damage represents only a small part of our 26-million-acre forest, but it is of vital importance," he said. "At a time when the industry is devoting its most serious efforts to development of a forest management plan that will provide jobs and incomes and forest products for generations to come, such an enormous loss is something the region can ill afford."

"What has happened in Coos and Douglas counties was not anticipated. It is not anticipated elsewhere, but it can happen. Certainly the long-range economy of a region should not be jeopardized by continuing indifference to a problem which is proving so vital."

The problems of any locality in the Douglasfir region are of importance to every community dependent in whole or in part upon Douglasfir timber. A study of the Douglasfir beetle has been neglected far too long.



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CONNECTICUT YANKEE FORESIGHT

Combines with good forestry and business methods to make the family woodland produce present and future income

"Son, I am leaving trees for you to cut in years to come," were often the words of Burton L. Griffin of East Granby, Connecticut, as over the years he cut a mature or poor tree here and there in his three small woodlots. His son now has benefitted by the wisdom of his father. He has absorbed, also, the father's philosophy that keeping woodlots productive is simply good sense.

The son, Beman, now a 45-year-old dairy and tobacco farmer with a wife and three children, is concerned, of course, about keeping his woodlots productive for his children's future. But he is also concerned about obtaining an immediate profit. The evidence of his father's pioneering work in forestry practice has been convincing. The aggressive efforts of

high pressure timber buyers to clear-cut the woodlots at present high prices have failed to break down the resistance of this enlightened farmer. The Griffin family is one of the growing number of Connecticut woodland owners who are cooperating in the farm forestry program to increase farm income by better cutting practices.

Last year Beman Griffin called on A. W. Hurford, farm forester, in charge of the central Connecticut woodland management project, for assistance in arranging a timber sale. Over 335 thousand board feet of mixed hardwoods, chiefly oak, white pine, pitch pine and hemlock were selected for cutting on about 50 acres.

A large number of sawmill operators were invited to bid for the

marked stumpage. A record of the standing tree estimate showing the number of trees marked for cutting and the estimated volume by species and diameter classes was made available to each bidder. However, each prospective buyer was cautioned to use the estimate as a reference only. He was urged to see the trees and assume responsibility for his bid. This was necessary because sawmill operators vary in both utilization of trees and in their ability to produce the most lumber from the cut logs. Further, the tree volume may be subject to cull because of rot and other factors. The Connecticut standard timber sale contract was used for a lump sum sale of all designated trees and with the necessary requirements listed to protect both the buyer and the seller.

The highest bidder was a sawmill operator who offered Mr. Griffin \$4,000 for the marked timber, plus some slabs and most of the sawdust produced by the portable sawmill while on the job. State Forester Raymond Kienholz emphasizes that this case shows that selective cutting will often bring the owner as much immediate income as could be obtained from clear-cutting. In fact, the owner often receives more than the going price when selected trees are offered in competitive bidding.

Close to 100 thousand board feet of the timber sold was white pine, pitch pine and hemlock, all in demand and now scarce in Connecticut. Much, but not all, of the hardwood was fairly large size oak, also desired by the sawmill operator. However, the poorer and smaller trees which should come out in a selective cutting were also marked for sale. The selection of the trees to be cut was based on improvement of the stand, as well as on market demands.

Forester, sawmill man and owner agree that this large white pine will be a profitable one to cut



Having profited from the state's advice and assistance, Beman Griffin made a money contribution to the Connecticut Forestry Department with the suggestion that it be used in the department's educational program promoting better farm forestry. His gift made possible the purchase of a camera for taking farm forestry pictures for use in illustrated talks to woodland owners throughout the state.

The purchase of the Griffin marked stumpage started sawmill operator Ivan Moore on his first cutting of selected trees marked by a farm forester. He now realizes the need for conservative cutting to maintain and encourage the growth of a sufficient quantity of log-size timber trees within a reasonable working distance of his home and sawmill yard in Bloomfield. In his middle thirties, Moore appreciates the value of a permanent supply of lumber to protect his business investment, even though it costs him slightly more to cut according to contract specifications. Farm Forester Hurford believes that an increasing number of operators will be even more receptive to good cutting practices when the woodland owners insist on owner-controlled cutting of trees selected by a competent forester.

Treat Weakened Elms

THE principal symptom of Dutch elm disease is wilting and yellowing of the foliage, which may appear in the entire tree or only part of it. A tree in this condition becomes attractive to the elm bark beetles, which carry the disease-causing fungus from diseased trees to other elm trees.

To prevent the further spread of the disease and probably impart benefits to the wilting tree, the New Jersey Department of Agriculture recommends the following operations: (1) If the tree is small and of no value, fell and burn it immediately; (2) If tree has value, or is too large to remove and burn immediately, spray it thoroughly with DDT. One of two DDT treatments is recommended: If a hydraulic sprayer is used, apply three quarts of 25 percent emulsifiable DDT concentrate in 50 gallons of water. This amount is sufficient for the average size (50 feet high) trees. If a mist blower sprayer is used apply two quarts of 25 percent emulsifiable DDT concentrate diluted with one gallon of water for the average size tree.



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CONSERVATION IN CONGRESS

By A. G. Hall

The budget presented by the President for the fiscal year 1948-49 for the most part will finance conservation agencies to about the same extent as they are being financed in the current fiscal year.

National forest administration shows budget increases of \$100,000 for maintenance of improvements, \$300,000 for forest fire prevention and control, almost \$600,000 for timber sales administration and \$250,000 for administration of grazing. A significant omission from the national forest budget is funds for wildlife management. This is the item that was struck from the 1947-48 budget by the House Appropriations Committee.

Another increase for the Forest Service is one of \$90,000 for forest and range research. The \$9,000,000 estimate for cooperative fire control is the statutory limit for federal expenditures in this field.

Major decreases in the Forest Service budget fall in land acquisition and forest roads and trails programs. The lower estimate for the naval stores conservation program is based on funds to carry the activity to the end of the 1948 crop year.

Increases for the Department of the Interior point to greater functioning of the Bureau of Land Management as a conservation agency. The major increases are designed to improve administration of grazing lands, to construct and maintain range improvements, to provide more effective fire prevention and suppression and timber management, to strengthen staffs in field offices and to expand surveys of public lands and land classification work. Increases, likewise, are proposed for the management of forest and range on Indian reservations and for soil and moisture conservation activities.

An increase of over \$6,000,000 is proposed for the Park Service, principally for construction and maintenance of roads and facilities for accommodation of park visitors.

Chief increases for the Fish and Wildlife Service are for investigations, development and maintenance of fisheries resources. In addition to the \$7,000,000 budgeted for federal aid to wildlife restoration, there is an unexpended balance of over \$2,000,000 from the current year available to this activity. Similarly, the migratory bird conservation program has an unexpended \$2,000,000 balance.

CONSERVATION IN THE 1948-1949 BUDGET

Appropriation and Project	1948 Appropriation	1949 Budget Estimate
DEPARTMENT OF AGRICULTURE		
Forest Service: (Total).....	\$59,020,041	\$56,334,500
General Administration.....	650,000	650,000
National Forests (Total).....	24,014,891	25,064,000
General Management.....	6,832,169	6,832,169
Maintenance of Improvements.....	2,575,276	2,675,276
Fire Prevention and Control.....	7,154,877	7,354,877
Pest Control.....	100,716	(101,000) ¹
Timber Sales.....	3,315,166	3,914,991
Grazing Administration.....	794,428	1,044,428
Policing.....	541,640	541,164
Land-use Management.....	600,000	600,000
Water-use Management.....	44,711	44,711
Improvement Construction.....	186,000	186,000
Planting and Planting Care.....	1,869,908	1,869,908
Fighting Forest Fires.....	100,000 ²	100,000
Land Acquisition.....	892,000	642,000
Cooperation with States (Total).....	9,809,500	9,809,500
Fire Control.....	9,000,000	9,000,000
Tree Planting, Farm Forestry, etc.....	809,500	809,500
Research (Total).....	4,547,000	4,647,000
Forest and Range.....	2,475,000	2,565,000
Forest Products.....	1,250,000	1,250,000
Resource Investigations.....	822,000	822,000
Roads and Trails.....	16,300,000	15,050,000
Naval Stores Cons. Program.....	732,000	382,000
White Pine Blister Rust Control.....	1,974,650	(1,974,650) ³
Forestry in Other Agricultural Bureaus		
Entomology and Plant Quarantine		
Gypsy-Brown-tail Moth Insp. & Control....	603,600	(603,600) ⁴
Dutch Elm Disease Control.....	101,800	101,800
Forest Insect Invest. & Control.....	480,800	480,800 ⁴
White Pine Blister Rust Control.....	1,193,350	(1,193,350) ⁴
Soil Conservation Service (Total).....	40,648,000	40,612,000
Extension Service		
Private Forestry Cooperation ⁵	(106,343)	(106,343)
Bureau of Plant Industry		
Forest Disease Investigations.....	379,280	380,480
National Arboretum.....	436,900	413,900
Bureau of Agricultural and Industrial Chemistry		
Naval Stores Investigations.....	152,550	152,550
To various agencies under the general title "Control of Forest Pests".....		4,590,400
DEPARTMENT OF THE INTERIOR⁶		
Bureau of Land Management		
General Adm. of Range and Timber Resources.....	60,605	69,777
Mgt., Protection and Disposal of Public Lands.....	2,384,640	3,387,565
Mgt. & Protection, O & C Lands.....	469,300	500,000
Leasing of Grazing Lands.....	7,500	6,000
Fire Fighting.....	40,000	150,000
Range Improvements.....	253,000	350,000
Bureau of Indian Affairs		
Management of Forest and Range.....	801,500	1,100,000
Fire Fighting.....	12,000	12,000
Tribal Funds.....	25,000	25,000
To Various Bureaus from Secretary's Funds		
Soil and Moisture Conservation.....	1,900,000	2,500,000
White Pine Blister Rust Control.....	582,000	(582,000) ⁷
National Park Service.....	10,428,055	16,894,150
Fish and Wildlife Service		
Conservation of Fish and Wildlife.....	6,532,810	11,587,200
Fed. Aid to Wildlife Restoration.....	9,031,273	7,000,000
Migratory Bird Conservation.....	4,361,652	2,000,000
TENNESSEE VALLEY AUTHORITY		
Resource Development Activities.....	5,490,000	5,482,000

¹Includes \$10,000 for printing, both years.

²Included in Agricultural Budget under title "Control of Forest Pests."

³Supplemented by a deficiency appropriation of about \$5,000,000.

⁴Includes \$10,000 from title "Control of Forest Pests."

⁵Included in Forest Service item for cooperative tree planting, farm forestry, etc.

⁶Does not include \$25,000 for forest insect control on public lands, included in U.S.D.A. Appropriation.



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NEWS IN REVIEW

ARKANSAS, through the establishment of a department of forestry management within the forests and parks division of the state Resources and Development Commission, will now extend management help to any landowner in the state. Chief of the new department is Lawson Anderson, and W. A. Faucheux is field assistant. Under legislation passed in 1947, the new department may make free preliminary examination of forest land and offer advice on its management. Department employees may mark timber for harvest and make a charge not in excess of five percent of the value of the marked timber. The free service does not include timber cruising.

The Massachusetts General Court has under consideration five measures affecting conservation. One would make important changes in the organization of the State Department of Conservation; two would authorize the closure of private forest lands in times of high fire hazard and continue wartime forest fire prevention and control measures; the remaining two bills would increase appropriations for Dutch elm disease control by \$50,000 and enable small towns to obtain modern equipment for control work.

Authorization for a four-year expansion program and an appropriation of \$2,123,526 is requested by the Mississippi Forestry Commission. In South Carolina legislation to limit future land acquisition in the state by the U. S. Forest Service is reported ready for introduction in the state legislature. South Carolina will also request funds for forest tree nursery expansion to a minimum capacity of 30 million seedlings annually. Virginia's proposed forestry budget for the coming biennium is \$730,056, an increase of \$232,524 over the current appropriation. A major item in the increase is additional timber management aids to small owners.

A stock-taking of Maryland's 2,700,000 acres of forest land with a view to determining the effectiveness of the state's forest development program will be part of a state-wide nat-

ural resources inventory to be made this year. The survey will include fish and game resources as well as forests. Present plans are to make re-surveys at intervals of about every ten years in order to keep the information currently useful to the State Board of Natural Resources and other conservation groups. The results of the inventories will be publicized among the people of Maryland to keep them informed of resource conditions and will serve to guide public officials in policy determinations.

Harvesting permits are required by all logging operators in Oregon under the state's forest conservation act as amended in 1947. The new law became effective January 1. The permit specifies certain forestry practices which must be followed by the operator to give reasonable assurance that the lands will remain in productive condition following logging.

An annual yield capacity of 648 million board feet is seen for twelve master sustained-yield units, involving 2,250,000 acres of revested Oregon and California grant lands and 5,500,000 acres of public and privately owned adjacent lands. The units were recently approved by the Secretary of the Interior.

Transferring of 5,560,000 seedlings from the Forest Industries Tree Nursery at Nisqually, Washington, to private lands will be concluded by early spring. Aim of the nursery, now in its sixth year, is to provide a minimum of 6,000,000 seedlings yearly for restocking of fire denuded forest lands in the Douglasfir region of western Washington and Oregon. The Joint Committee on Forest Conservation, representing the West Coast Lumbermen's and Pacific Northwest Loggers Association, said the seedlings will be planted by private landowners, including lumber, pulp and plywood manufacturers. It was emphasized by the committee that more than ninety percent of the 15 million acres now growing future forests in the region were reseeded naturally, hand planting being necessary only in isolated cases.

Indiana planted 6,000,000 seed-

lings in 1947, 2,750,000 of which were planted on strip coal lands.

R. F. Filberg, manager of the Comax Logging and Railway Company of British Columbia, was elected president of the Western Forestry and Conservation Association at its 38th annual conference in December. First vice-president is P. D. Edgell, western lands chief for the Northern Pacific Railroad. Regional vice-chairmen are H. C. Shellworth of Idaho, E. B. Birmingham of California, E. B. Tanner of Oregon, W. C. Lubrecht of Montana, and H. R. MacMillan of British Columbia. Re-elected as secretary, treasurer and forest counsel were Clyde S. Martin, C. S. Cowan and E. T. F. Wohlenberg, respectively. There are now 550 foresters employed by forest industries in the area served by the association. In 1920, there were only twenty industrial foresters in the area.

At its 26th annual meeting, the Washington State Forestry Conference approved a resolution for an unbiased, impartial federal commission to study the Olympic National Park with a view to settling issues involving commercial forest lands in the park. Gordon D. Marckworth, dean of forestry at the University of Washington was re-elected president of the conference, and C. S. Cowan was re-elected secretary-treasurer.

"A Guide to Community Organization for Fire Safety," a twelve-page manual, prepared by the committee on organized public support of the President's Conference on Fire Prevention, outlines the steps to be taken in organizing fire safety committees and suggests activities for programs by various groups and organizations. Copies may be obtained from The American Forestry Association.

In a report to Governor Horace Hildreth of Maine, chairman of the New England Governors' Conference, the New England Council's conference of forestry officials recommends specific measures for avoiding future forest fire disasters. The report calls for the placing of forest fire control

Correction

In the January issue, Clyde S. Martin, newly elected president of the Society of American Foresters, was identified as chief forester for the Western Pine Association. This is in error. Mr. Martin is chief forester for the Weyerhaeuser Timber Company.

activities in all New England states under the complete jurisdiction of the respective state forest agencies. Each state and municipality should establish a central authority to coordinate the procurement and movement of men, supplies and equipment to affected areas, the report states. A similar central authority is recommended for New England as a whole. A comprehensive fire control plan for New England and for each state, prepared in consultation with a committee of representative citizens is also recommended.

• • • • •

Wetting agents proved their worth in New England's fall fire season. Nearly 900 gallons of one agent were used in the Maine fires alone. Reports indicate that wetting agents produced marked penetration and saturation of hardwood leaf and softwood needle litter, duff, humus, sawdust piles, rotted logs and stumps. On days of high hazard they were particularly successful in effecting faster and more complete line control. In mop-up work they made possible early reduction of patrolling forces.

• • • • •

Lumber production in the Douglas-fir region of western Oregon and

Washington is estimated at about 7,500,000,000 board feet, an increase of about 200,000,000 over that for 1946. This is the highest production of any peacetime year since 1930. Number of sawmills in the region has increased from 383 in 1932, to 1,445 in 1946. Although figures are not available for 1947, it is probable that the total exceeds that for 1946 by more than 100. The dollar value of Oregon and Washington's Douglasfir lumber production amounted in 1926 to \$215,300,000; in 1933 to \$61,900,000; in 1943 to \$310,600,000; and in 1947 to an estimated \$500,000,000. Barring unforeseen circumstances, 1948 production may top that of 1947.

• • • • •

Nearly two million acres were certified during 1947 under the tree farm program sponsored by American Forest Products Industries, Inc., bringing the total land so classified to 14,864,413 acres.

• • • • •

Frank A. Kittredge, superintendent of Yosemite National Park, has been named chief engineer of the National Park Service. He has been with the service for the past twenty years. Dr. Carl P. Russell, who for the past nine years has been chief naturalist for the

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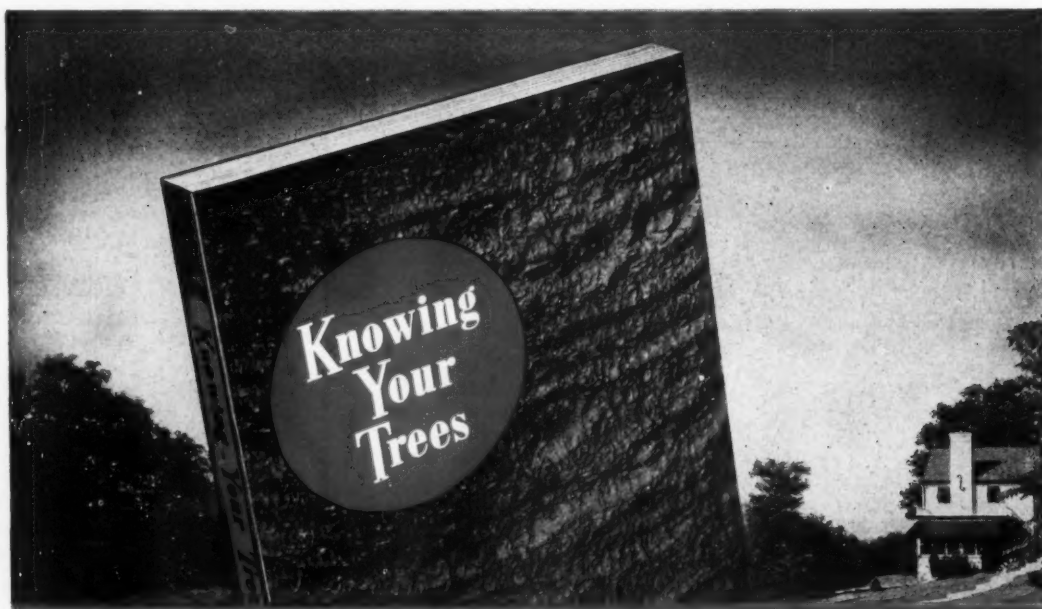
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service, succeeds Mr. Kittredge at Yosemite.

Death came to two West Coast foresters late in 1947. Warren G. Tilton, chief forester for the West Coast Lumbermen's Association, died December 23 of a heart attack. Hugo Winkenwerder, dean emeritus of the college of forestry, University of Washington, succumbed to a heart attack on November 30.

Dr. Logan J. Bennet has been placed in charge of the nationwide cooperative wildlife research unit of the U. S. Fish and Wildlife Service. He succeeds Dr. Lee E. Yeager, who has transferred to Fort Collins, Colorado. Dr. Bennet is president of the Wildlife Society.

The rolling desert country of Big Bend National Park in western Texas, will once again provide visitors to the park with the sight of pronghorn antelope, if a recent restocking by the Texas Game, Fish and Oyster Commission proves effective. Fifty-three antelopes have been turned loose in the heart of the park.

The Food and Agriculture Organization of United Nations is sending a small technical mission to Venezuela to study the possibility of exploiting industrially the wild oil-bearing plants and introducing cultivated oilseeds that will thrive under Venezuelan conditions. It will also study methods and equipment used in processing oilseeds. An important part of this exploration will be an aerial survey of the areas in which large numbers of oil palms are believed to grow.

A mission likewise has been sent by FAO to Siam to study problems of agriculture, including forest conservation and management and water supplies. Forestry expert for the mission is Dr. G. N. Danhof of the Indonesian Forest Service.

The Kent, Ohio, Tree Commission forbids the street planting of evergreen, fruit and nut trees (except oaks) as well as such popular shade trees as silver maple, boxelder, ailanthus, poplar, willow and catalpa and including such ornamentals as dogwood, white fringetree and redbud, which do not attain the size of mature shade trees. It recommends Norway maple, Schwedler maple, red maple, ginkgo, honeylocust, sweetgum, tuliptree, oriental planetree, scarlet, red, pin and willow oak and American and European linden.

Some of the trees on the "forbidden" list have root systems likely to plug sewers or other underground construction. Others drop obnoxious fruits and nuts that clutter up sidewalks and parking strips. Evergreens lose their beauty when pruned to conform with street needs. Silver maple and catalpa are easily damaged during storms because of exceedingly brittle wood. Trees that have attractive flowers or fruits are likely to be ruined by children.

Meetings You Should Attend

February 4, 5, 6—West Virginia Horticultural Society, Martinsburg, West Virginia.

February 5—Michigan Forestry and Park Association, Lansing, Michigan.

February 6 to 15—Baltimore Outdoor Show, League of Maryland Sportsmen, Fifth Regiment Armory, Baltimore, Maryland.

February 12, 13, 14—Association of Southern Agricultural Workers, Willard Hotel, Washington, D. C.

February 14 to 22—Detroit Sports Show—Michigan United Conservation Clubs, Convention Hall, Detroit, Michigan.

February 18, 19—Southern Forestry Conference—Forest Farmers Association, Hotel Heidelberg, Jackson, Mississippi.

February 18, 19, 20—Ohio State Horticultural Society, Hotel Cleveland, Cleveland, Ohio.

February 19, 20—Midwest Chapter National Shade Tree Conference, La Salle Hotel, Chicago, Illinois.

February 20, 21—Allegheny Section, Society of American Foresters, Lord Baltimore Hotel, Baltimore, Maryland.

February 27 to March 7—International Sports, Travel and Boat Show, Navy Pier, Chicago, Illinois.

March 5 to 14—Washington Outdoor Show—League of Maryland Sportsmen, National Guard Armory, Washington, D. C.

March 8, 9, 10—Thirteenth North American Wildlife Conference, Hotel Jefferson, St. Louis, Missouri.

March 13 to 20—Fifth Annual Canadian National Sportsmens Show, Canadian National Exhibition Coliseum, Toronto, Canada.

March 22—Wood Products Clinic, Spokane, Washington.

March 24, 25, 26—Intermountain Logging Conference, Davenport Hotel, Spokane, Washington.

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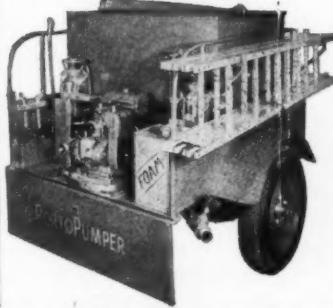
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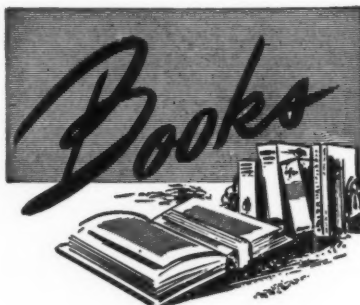
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OUR FLOWERING WORLD, By Rutherford Platt. Published by Dodd, Mead & Company, 432 Fourth Avenue, New York 16, New York. 259 pages, illus. Price \$6.00.

When Mr. Platt found himself sucked into the maelstrom of the New York business world he was conscious of the fact that he was missing something, namely, the joy of watching plants grow. But unlike most, he decided to do something about it and took the time to explore the plant world with camera and notebook. In the course of time and searching through miles of field and wood, Mr. Platt accumulated thousands of photographs and made equally as many interesting observations. This book, his second, is the result of his field work and it has the charm of the enthusiast playing hooky from school. It is beautifully illustrated with 168 superb photographs, thirty-eight of them in full color. Mr. Platt's first book, "This Green World," won the author the 1945 John Burroughs medal for outstanding work in the naturalist field.

PAUL BUNYAN OF THE GREAT LAKES, by Stan Newton. Published by Packard and Company, Hendricks House, 537 S. Dearborn Street, Chicago 5, Illinois. 188 pages. Price, \$2.50.

Stan Newton, a newspaperman and editor, collected hundreds of Bunyan stories in the course of his travels in Michigan's Upper Peninsula and elsewhere, and has now linked them all together to make a lively and amusing book. Newton writes with relish and spirit and the result a thoroughly enjoyable story of the mighty Bunyan and his pals, enhanced by many deft touches such as Truthful Tim's statement regarding the Great Tahquamenon swamp, birthplace of Paul Bunyan. "The happiest man I ever knew lived in the Tahquamenon swamp," says Truthful Tim. "He owned a brook."

ALONG SIERRA TRAILS, KINGS CANYON NATIONAL PARK, by Joyce and Josef Muench. Published by Hastings House, 67 West 44th Street, New York, N. Y. 101 pages, illus. Price, \$2.50.

Joyce and Josef Muench have used 146 superb photographs and a smattering of text to provide a sharp, quick view of the best of Kings Canyon National Park. The photographs are reproduced on sheet-fed gravure. The Kings Canyon National Park of California encompasses 710 square miles of wilderness area in the High Sierra. To reach its inner fastness the traveler must desert the roads and hike or ride horseback over well-kept trails. The authors take the reader through the spectacular canyon of the South Fork of Kings River and climb the passes newly freed from their winter wrappings to obtain their delightful pictures.

PLANTING DESIGN, by Florence Bell Robinson. Published by The Garrard Press, 119-123 West Park Avenue, Champaign, Illinois. 208 pages, illus. Price, \$3.00.

Got a boxy, uninteresting looking house? Well, this book may help you for it supplies practical, sensible tips on how to landscape your grounds in a manner that best compliments your home by covering up ugly lines and bringing out the more beautiful features. All too often too much time is spent on furnishing the interior of a house and not enough on "furnishing" the front yard, in the opinion of this writer. "This is poor business as well as poor taste," F. F. Rockwell, garden editor of the *New York Times*, writes in a foreword, "for the house itself, from the moment it is finished, must begin to deteriorate, while the planting, if correctly done, constantly appreciates—often sufficiently to add a very material figure to the value of the house and grounds as a whole."

THE NEW ILLUSTRATED FLORA OF THE HAWAIIAN ISLANDS, by Otto Degener, Waialua, Oahu, Territory of Hawaii. Price \$6.00.

The present edition of this monumental work on the little-published flora of the islands, combines volumes one through four of previous editions. This loose-leaf book, designed to permit revision as new botanical information is accumulated, is the most complete treatment available on Hawaiian flora. It contains botanical descriptions and full page illustrations of over 300 species.

George Washington

(From page 71)

plaster of today. It was made from oyster shells dredged from the bed of the Potomac, the most ready source at that time, and is characterized by a chalky appearance. Fortunately, there was a supply of clay on the place suitable for making bricks. When the chimneys were enlarged in 1758, it is recorded that 16,000 bricks were burnt.

After the war for independence was won, Washington was very happy to retire to Mt. Vernon. As he wrote Lafayette, "At length my dear Marquis I am become a private citizen on the banks of the Potomac; and under the shadow of my own vine and my own fig tree, free from the bustle of a camp and the busy scenes of public life, I am solacing myself with those tranquil enjoyments of which the soldier . . . the statesman . . . and the courtier . . . can have little conception. . . . Envious of none, I am determined to be pleased with all; and this, my dear friend, being the order of my march, I will move gently down the stream of time until I sleep with my fathers."

He had planned to spend the balance of his days there and, when urged to accept the Presidency, said, "It would be to forego repose and domestic enjoyment for trouble, perhaps for public obloquy." He later accepted the office as a sacred duty and, after eight years of most faithful service, returned to his beloved Mt. Vernon where his remaining years were quietly passed.

Washington was continually planning improvements in the buildings of his estate, and it was unfortunate that at times when extensive building operations were under way, it was usually necessary for him to be engaged elsewhere.

That Mt. Vernon is in such an excellent state of preservation today is due to its having been acquired more than a half-century ago by an organization of public-spirited citizens whose aim has been to restore the buildings and grounds as they were when Washington lived there. Bricks needed to repair the foundations were obtained from the ruins of a house in the same locality which was built about the same time. The shingles have been renewed twice since Washington's death and when they were replaced in 1913, the new ones were split by hand from baldcypress trees

near the North Carolina coast to the same dimensions as the original. The original siding was fashioned to represent stone blocks and where replacements were necessary the original pattern was closely followed. The sand finish of the siding required considerable experimentation before it was determined how the original appearance was obtained.

Of the large timbers supporting the first floor, all that rested on the ground have been replaced. This is true also of several supporting the flooring. But the others, on which the marks of the adze can still be seen, appear to be sound throughout. The timbers above the first story, many of which are more than 200 years old, are as sound as when they were placed there. Much of the original flooring, although much worn, is still in place. It is claimed that the banquet hall has the original floor, having seen a century and a half of service. Much of the porch work has naturally been replaced. The central hall has the original panelling and its excellent condition at the present time testifies to the care which was used in its fabrication.

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Public Range

(From page 60)

only fourteen percent in severe or extremely depleted classes. But the grazing land on these forests constituted only twelve percent of the whole.

Overgrazing progressively lowers the character, quality and binding power of the herbaceous vegetation throughout all western grazing lands. Stockmen, when they first invaded these ranges, found a type of forage in which nutritious grasses predominated, whose roots formed a dense soil-binding mass, capable of resisting the erosive effects of the torrential rains characteristic of an arid region. These plants were the first to succumb to continuous, close and unseasonable cropping. They were succeeded by weeds, less palatable, of lower value for food, and with roots which did not bind the soil. In the final stage of destruction, even this form of growth disappears and cacti and other desert plants, or comparatively worthless annuals such as cheat grass, take their place. The stockmen then blame the climate and hope for a restoration of the feed "when the rains come."

The greatest and most spectacular damage caused by overgrazing occurs on the extreme headwaters of streams such as are found in the central basin, in Utah and Idaho, and in the flood plains of rivers, the valley of the Rio Grande and its tributaries in New Mexico being a typical example.

In the Salt Lake Basin, Lake Bonneville, the great body of fresh water of which Great Salt Lake is the shallow remnant, rose, during the melting of the glaciers, to a height of hundreds of feet above the present level, and terraces caused by wave action can be traced along the mountainsides for many miles. These conditions remained undisturbed for over 10,000 years—until white settlers brought sheep into the mountains.

The fertile floors of the valleys, under irrigation, were developed into rich productive areas. Then for the first time since the retreat of the great lake, torrents began a work of destruction. Mud flows and huge boulders buried farm lands at the mouths of canyons, inflicting irreparable damage. When traced back to the source, it was found that these floods originated at the extreme headwaters of the streams, in comparatively small areas, privately owned, where overgrazing by sheep had broken up the protective sod. The impetus, once started, gathered strength as the loaded waters rushed down the steep

gradients, tearing loose the precariously balanced surface soils formed by centuries of vegetative protection. Under Forest Service regulation these plague spots are now being healed by control of grazing and reseeded.

In Idaho, in the irrigated plains fed by the Snake River, the great Arrowhead Dam is silting up at a dangerous rate. When it is filled with the scourings of the denuded grass slopes, the settlers will be without water except in times of flood.

The greatest tragedy of the West lies in New Mexico, and affects our oldest inhabitants, the Pueblo Indians and their offshoot, the Mexican population. Pueblo culture, based on irrigation, extends back to 842 A.D. In northern New Mexico, in Chaco Canyon, there once existed a civilization so prosperous that of the fourteen pueblo ruins to be found here within a six-mile radius, one known as Pueblo Bonito consisted of a six-story "skyscraper" containing 800 rooms, a portion of which is well preserved to this day. Tree ring chronology, the science which dates the timbers used in construction of these pueblos by matching series of wide and narrow rings caused by fluctuations in annual rainfall, revealed a drought which began in 1220 A.D. and lasted for twenty years. Without water, the tribe walled up the slit windows of the pueblo, departed, and never returned. Some evidence indicates the possibility that the hardy survivors of this emigration founded the Astec dynasty in Mexico.

The floor of this peaceful valley of the Chaco was level and threaded by a shallow stream which meandered down its length, the waters of which could be easily diverted by low wing dams and ditches for the raising of crops of corn and squashes. J. W. Simpson, who conducted a military reconnaissance from Santa Fe into the Navaho country in 1849, described this valley as a level floor, in which was a small stream with a depth of about two feet.

Then came the sheep. In this instance, the nomadic Navaho was the cause of overgrazing. With the increase in the population of this tribe from 8,000 in 1865, to 55,000 in 1946, which is still continuing, sheep outran their food supplies. Freed from restraint, the water began to cut a small channel through the valley floor. Year by year this arroyo deepened, cutting vertically through thirty to forty feet of rich alluvial strata until bedrock was reached. Successive floods undermined the walls and widened the chasm. In 1932, the gorge, then 200 to 300 feet wide, was

about to swallow the ruins of Pueblo del Arroyo, older than adjoining Bonito and which had stood undisturbed for at least 1,000 years.

This destruction occurred in a region long abandoned by the original Indian colonists. Not so the Rio Puerco, flowing into the Rio Grande south of Albuquerque, a valley early known as the bread basket of New Mexico—now a desolate waste with hardly an acre of land in its whole expanse upon which water can be brought. The gorge of the Rio Puerco is now 500 feet wide and fifty feet deep, paved with boulders, and is still enlarging with every freshet. The former settlers now constitute a portion of the rising tide of misery, pauperism, and federal aid which is the unsolved problem of the Southwest.

The damage does not stop with smaller streams of which twenty-one were listed by Kirk Bryan in *Science* for October 16, 1925, as being destroyed by channel cutting and arroyos. The vast quantities of soil torn from the ancient valleys has caused the bed of the Rio Grande at Albuquerque to rise thirteen feet. Dikes are now required to prevent inundating the city. Seepage and the impossibility of getting the water from the irrigation ditches back into the river, and the accumulation of poisonous excesses of mineral salts from lack of drainage, has already reduced the area of arable land in the valley by 80,000 acres. Poverty and destitution are rife among a Mexican population, whose density a square mile of tilled land exceeds that of any other area in the country.

This situation was brought on entirely by overgrazing, occurring since the advent of the stockman, as shown by historical records of scores of communities, including among others those in the San Juan Valley of southwestern Colorado. Here anthropologist Earl Halstead Morris of Pueblo,

testifies that the strata in the valley floor had remained undisturbed from the time of the first traces of Indian culture—the basket makers—down to modern times, when erosion set in.

Control, in the valley of the Rio Grande, presents a difficult problem, which must be solved as a whole. The elements are, first, the national forests. Here rapid progress has been made since World War I. During and preceding this period severe overgrazing was permitted, first in comparative ignorance of the damage which was occurring, and later as a war measure for the production of meat.

Second, the Indian reservations. An enlightened policy of education, improvement of the grades of sheep, and cooperation of the Pueblo tribal councils has brought about a degree of improvement which has promise.

Third, the remaining public domain and the private lands. Due to the individual ownership of stock by the numerous population of the valley, the reductions of livestock on national forests have in part served only to increase the pressure and intensify the damage on land still open to these native residents. After the passage of the Taylor Grazing Act in 1934, to be mentioned later, an advisory committee was formed in July 1935, to assist the Rio Grande Conservancy District in solving its problems. This committee included representatives of the Forest Service, the Resettlement Administration, the Superintendent of the Pueblo Indians, state director of the new Division of Grazing, director of the State Planning Board, the State Land Commissioner, and the State University and State College. Despite this cooperative effort, conditions continued to grow worse and the conservancy district hovers on the borderline of insolvency.

To be concluded in the March issue.

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Florida's Forests

(From page 78)

tine and 1,400 pounds of rosin, brought \$57.06 in 1941 and \$93.94 in 1945.

It seems only natural that Florida, recognizing that her forests are different, should make provision to train her sons to handle the specialized problems. The University of Florida at Gainesville has a good forest school where the young men of the state can obtain a well rounded general forestry education along with the specialized "know how" of handling the millions of acres of longleaf-slash pine forests. The forest school has the Austin Cary Memorial Forest of several thousand acres for research. If a young Floridian wishes to become a forester he need not go elsewhere to get his training.

The traveler in south Florida will see strange looking trees used for windbreaks along the sides of groves and fields and in some localities he will notice that these strange trees have "gone native" and have escaped from their planted rows to occupy other land. Three species of Australian pine (*Casuarina* sp.), Cajuput (*Melaleuca leucadendron*), Australian silk oak (*Grevillea robusta*) and three eucalypts do well. The Florida Forest Service has been experimenting with these trees since 1939. Plantations are now growing on various sites and tests of the wood of these fast-growing strangers suggest new and different kinds of trees.

Florida's sawtimber volume is declining. Her total growing stock of trees, according to cold bare statistics, is decreasing. Yet Florida is spending more than a million dollars a year on forestry. And more pulp mills are planned. The cows and fire in the woods are becoming less of a problem. The people are becoming more forest minded through education and demonstration. Large and small forest landowners are beginning to practice forestry and to plan for the future. Tax delinquency on forest land is practically non-existent. Gum farming has become scientific. It has been demonstrated over and over again that a cord of wood an acre a year will grow in Florida's young slash and longleaf pine planted or natural grown forests.

Can it be that the tide has turned in Florida, and in not too long a time the state will be able to grow more wood, and thus to cut more? Florida forests are different and somewhat enigmatic.

New England

(From page 63)

Serving an area composed of six to eight townships, the resident forester is within ten or twelve miles of any job in his district. Hence, he is able to live at home and to become a part of the community. His living costs are moderate in normal times, since he is generally located in a relatively small village. His position might be compared to that of the communal forester in Europe.

In a few years he should become the leading authority on forestry matters in his center and his income should compare favorably with foresters in public or private work of the same nature. The opportunity to practice his science and to gain recognition is as great as if he were in charge of an area many times as large.

What is true of the resident forester also applies to the production forester and the men of his crew in that they can live at home with their families and feel that their jobs are permanent.

"In the beginning," said Mr. Reynolds, "we had to adopt a charge for the services of a forester which would be low enough to attract clients. The charge was set at \$15 a day of eight hours and travel expenses. As a result of experience earned in 1946 with 65 clients, a timber management rate was prepared to serve as a guide for the forester to determine lump sum charges on an acreage basis, which charges have been found to show a somewhat higher net return. A charge is made to the forestry company of \$1 a thousand board feet for supervision, scaling, making of contracts and so on. By this means, part of the cost for service is paid by industry rather than the client. Many new clients want us to give a lump sum bid for a given service, and consequently a higher rate must be figured to allow for unforeseen contingencies. In this manner the foundation has been able to hold the charges at a moderate figure to our regular clients who have placed their lands under its care."

In addition to services rendered to owners, the plan calls for the acquisition of at least 1,000 acres by the foundation in each center for demonstration in forest management and for income. These lands will be obtained by gift, purchase or lease, but in no case will gifts of land be accepted that do not contain enough merchantable products to be self-supporting from the start. Some white

elephants in the form of cutover lands have already been proffered and politely turned down. Thus far, only two tracts, one of 565 acres and one of 250 acres, have been accepted as a gift. Both tracts have possibilities for income including timber, a gravel bank and land available for campsites and blueberry culture.

While farmers and small property owners have so far supplied the foundation with the bulk of its business, owners of large estates who have hesitated cutting their overmature timber, are becoming convinced that their forests can be marked and thinned without disturbing natural beauty. As a result, some estate owners are now not only reaping a substantial and steady profit from these operations, but the beauty of their estates, in most cases, has actually been enhanced. Naturally, this is a source of satisfaction to both the owners and the foundation foresters.

Of the four elements comprising the forest economy with which the foundation must work—the forest owner, the timber operator, the forester and the wood utilizer—the operator is the only one who may be inconvenienced temporarily if forest management becomes the accepted practice. As more and more owners place their lands under management, the more difficult it will be for the operator to buy timber without restrictions in cutting. But here again the outlook is hopeful with most operators cognizant of the fact that the day of clear-cutting in New England is entering the twilight zone.

Time was when an operator cleared the timber in a given location and moved on. Today, there are few places to move on to. Thus the operators are coming to realize that they

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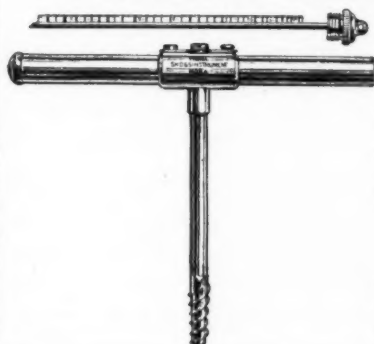
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are members of their various communities, and that in the long run proper management practices are their best bet to stay in business.

"The foundation has been especially fortunate in assembling foresters and their mates who possess fighting spirit," Mr. Reynolds concluded. "The housing shortage in New England has been so severe that some of the foresters have had to crowd into single rooms and live under extremely unsatisfactory conditions. With moderate incomes and spiraling living costs, it takes a high type of courage or devotion to an ideal to cast one's lot with a new venture which demands long hours and hard work. It has been said that forestry is not a profession but a religion. Whatever it is, these men have got it."

Mr. Reynolds warmly praises the cooperation the foundation has received from foresters in public service and industry. These various groups have given the foundation all-out support and encouragement from the start, he said.

While the foundation is too young to fully appraise its possibilities, it is certain that satisfied clients in the New England communities are doing more to arouse an interest in better forestry than any plan yet devised. Some bugs in the plan will undoubtedly develop as time goes on, but there are those who feel that this new step, pioneering in the full sense of the word, marks the auspicious start of a new and more personalized advance in the march of good forestry.

Letters to the Editor

(From page 52)

Where reporters were confused was in comparing this work with that of the various towns and cities, some of which were not well organized and few of which are in the Forestry District. Even in those places state authorities helped, and in a short time established an orderly system of fighting.

Fires were in a fair state of control until a strong gale started, against which no man or equipment could fight successfully. Perhaps most of the public does not understand, as well as you do, how flames jump overhead under heavy winds, but I think that on the whole the fires were very well handled—certainly coopera-

tion both in fighting fires and in looking after the needy was admirable. The work of the Red Cross was magnificent. The Governor did a remarkably good job in utilizing state forces and obtaining national aid.

Unfortunately, thus far, comparatively few contiguous towns have availed themselves of the opportunity of joining the Maine Forestry District. It seems probable that the effect of this fire will be to induce many more towns to join, and it is our feeling that the men in the Forest Service, instead of being criticized, should be heartily commended for their work.—W. V. Wentworth, Great Works, Maine.

AUTHORS

DON BLOCH (*The Tie Hacks' Last Stand*) is an information specialist with the U. S. Forest Service at Denver, Colorado. WARREN D. BRUSH (*George Washington—House Builder*), nationally recognized authority on American woods, is author of AMERICAN FORESTS' monthly feature "Knowing Your Trees." At present he is on a research assignment in Florida. JAMES B. CRAIG (*New England's Answer to the Small Woodland Problem*), former newspaperman, is assistant editor of AMERICAN FORESTS. A. G. HALL (*Water, Rocks and Trees*) is forester for The American Forestry Association, and associate editor of AMERICAN FORESTS. ED. R. LINN (*Florida's Forests Are Different*) was formerly a regional consultant for the Forest Resource Appraisal—is now a professor of forestry at Oklahoma A. & M. College, Stillwater. ROBERT B. MAHAFFAY (*The Killer*) is a staff writer of the West Coast Lumbermen's Association, Portland, Oregon. P. M. RUPERT (*Myrtlewood Lane*) is also a West Coast writer, making his headquarters in Los Angeles.

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The Purpose

The American Forestry Association is a national organization—educational in character—for the advancement of the intelligent management and use of the country's forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is (1) to bring about adequate protection and perpetuation of these resources by creating an enlightened public appreciation of the need of conserving them through wise use for the present and future welfare and enjoyment of all the people; (2) to make available to Americans in all walks of life a wider knowledge and appreciation of their forest resources and the part they can play in the social and industrial life of our nation.

The History MORE THAN half a century ago American men and women of vision, stirred by the rapid destruction of forests and forest life in the United States, began to raise their voices in behalf of conservation. Foreseeing the danger of allowing America's rich forests and vast natural wealth to be thoughtlessly wasted, these public-spirited individuals protested the needless destruction that was taking place. Out of their efforts came a collective force—The American Forestry Association, first organized in 1875 and made a national influence in 1882.

The Record THUS The American Forestry Association has a long record of efficient public service. The establishment of the United States Forest Service and the creation of the nationwide system of state and national forests and parks were due in no small part to the Association's efforts. Its educational work, extending over more than seventy years, has stimulated public action and built public support for protection against forest fires and floods; for prevention and control of soil erosion; for the development of conservation policies in forest management for continuous production through wise use; for the control of forest insects and diseases and the preservation of fish and wildlife.

The Support FROM AN ORGANIZATION of a few hundred members three decades ago, the Association has attained a substantial membership of many thousand men and women, living in every state of the Union and in foreign countries throughout the world. The funds of the Association are administered by a Board of Directors composed of individuals of national standing—men and women who give their services free, who have a practical understanding of the nation's present-day conservation needs, and are equipped through experience, ability, enthusiasm and training to advance the Association's program.

The Program BECAUSE OF its independent, non-political character, the work of The American Forestry Association is vitally necessary in the field of public service. It provides an unprejudiced influence for the development of sound conservation measures. It helps coordinate public, state and federal policies. It cooperates closely with federal, state and private agencies in conservation work. At the same time it initiates, sponsors and carries on needed projects in conservation in addition to its regular broad continuous program of education.

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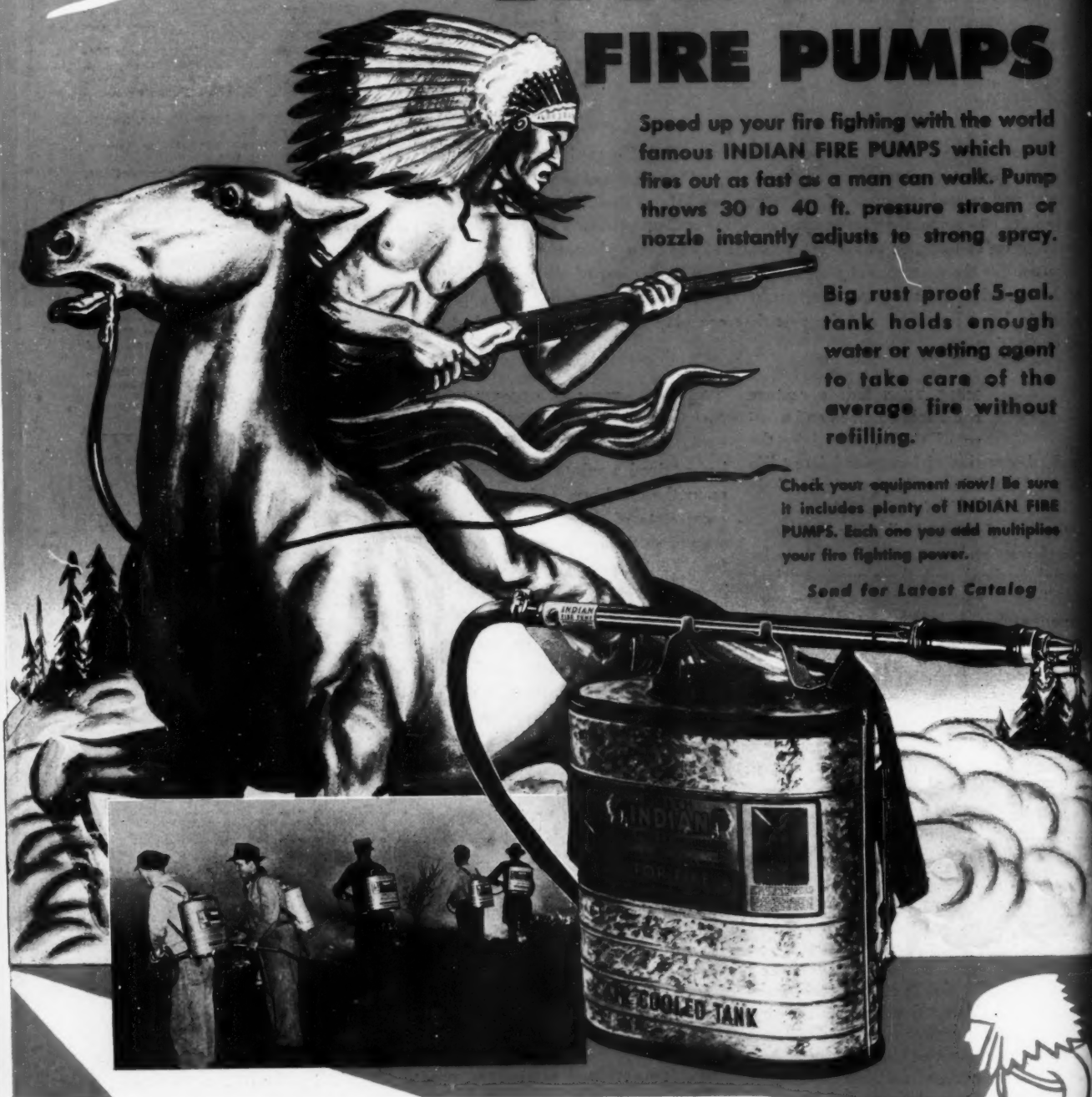
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Fred E. Barnett Co.
Broadway & Harris Sts.
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Bingham & Hobbs Equip. Co.
395 W. 5th Ave.
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CANADIAN AGENTS:
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297 Duke St.
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